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Products, News & Information Data Centers Can Trust. Since 1979

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COVER FOCUS

Storage: Is It Time For An Update?

When is the best time to refresh your storage equipment? And how do you go about choosing the best products and setup for your enterprise's needs? We talked with some experts to find out.

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Inside The Storage Refresh Cycle

Investigation & Planning Are Key To A Successful Strategy

by Christian Perry

• • •

EMPLOYEES ARE FRANTICALLY running through the halls, and customers are burning up the phone lines. A casual observer to this chaos might assume that a catastrophe just struck the company, but instead, a storage server failed, in turn severing access to critical data. What might seem like a trivial hardware nuisance to outsiders is big, bad news to organizations that rely heavily on their data, prompting data center and IT managers to increasingly focus on storage refresh cycles.

According to a recent report published in The Wall Street Transcript, virtualization technologies and the cloud are generating an increased need for storage, but the lackluster economy has forced many IT organizations to delay upgrades. However, if the economy continues to improve, an industry-wide refresh cycle—particularly for storage—is going to occur. In the meantime, managers must know how to recognize the signs that storage upgrades or replacements are required, and doing so means donning an investigator's cap and seeking the telltale signs.

Key Points

- Your company's policy should dictate when storage refreshes will ideally occur, but the length between refreshes can differ among organizations.
- Telltale signs such as crashes and slowdowns can indicate a refresh requirement, but keep in mind that some problems might just require tweaking existing systems.
- Although the reactive approach can be required within a tight budget, experts recommend using a proactive strategy when considering storage refreshes.

The Cycle Strategy

According to Cliffie McKay, operations manager at DMD Systems Recovery

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Security For Mobile Devices

Increase In Use Brings Increase In Risks

by Sue Marquette Poremba

• • •

THE SMARTPHONE has become almost as essential for business as the computer. And why not? Most people can do the majority of their computer-related work on their phone, and it's a lot easier to get through airport security.

"Today we have so many people who want to bring their smartphone or their iPad into the workplace. They don't want to carry two devices, and they want convergence," says Hugh Thompson, chief security strategist at People Security (www.peoplesecurity.com). "On the corporate side, there is motivation to let the employees have what they want. If you can give them a stipend to use and maintain their own phone, that's appealing."

Not surprisingly, then, with the increase in use comes an increase in security risks.

However, before a discussion of the risks and how to mitigate them can occur, an enterprise needs to come to a conclusion on who controls the phones. As Thompson says, letting employees use their own mobile devices can save a company a lot of money, but then how much, if any, control can the company expect over what applications are downloaded or who borrows the device? If the company owns and regulates the phone, it is in control of how it is connected to the network, but that comes at a large price tag—something to consider during hard economic times for SMEs.

> Not every phone has the same level of management capability.

Biggest Threat

Overall, the biggest security threat right now is loss of the device, which is then compounded by not immediately reporting the loss of the phone. Most people will search for their phone, sometimes for days, before admitting it is gone. That means the phone and all its data could be in the hands of someone else.

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   - ☐ Less than 10
   - ☐ 10 to 99
   - ☐ 100 to 199
   - ☐ 200 to 499
   - ☐ 500 to 999
   - ☐ 1,000+

2. **How often do you purchase computer hardware/software?**
   - ☐ Weekly
   - ☐ Bi-weekly
   - ☐ Monthly
   - ☐ Quarterly
   - ☐ Annually
   - ☐ No Involvement

3. **What is your annual computer hardware/software purchasing budget?**
   - ☐ $0 to $9,999
   - ☐ $10,000 to $24,999
   - ☐ $25,000 to $49,999
   - ☐ $50,000 to $99,999
   - ☐ $100,000 to $249,999
   - ☐ $250,000 to $499,999
   - ☐ $500,000 to $999,000
   - ☐ $1,000,000+

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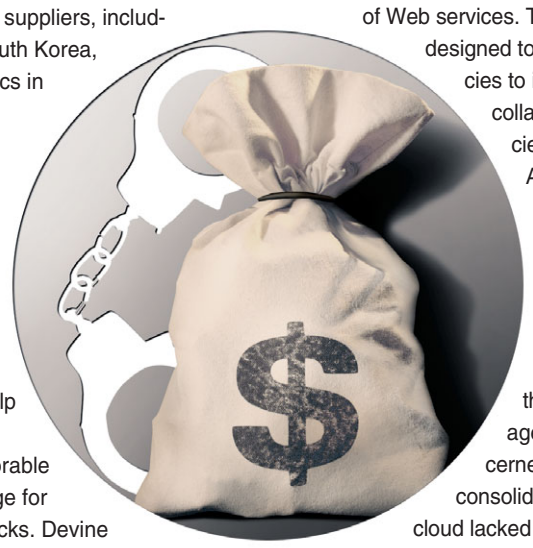
News

Kickback Scandal Results In Arrest

Paul Shin Devine, Apple's global supply manager in charge of contract manufacturing in Asia, has been arrested and charged with accepting $1 million in kickbacks from six Asian iPod and iPhone suppliers, including Cresyn in South Korea, Kaedar Electronics in China, and Jin Li Mould Manufacturing in Singapore. The charges allege that Devine shared confidential company information with these firms to help them win Apple business on favorable terms in exchange for monetary kickbacks. Devine reportedly shared the kickbacks with Jin Li employee Andrew Ang, who helped broker the deals with the firms. Apple is suing Devine in a San Jose court.



File Transfer Security Policies Lacking

According to a recent Ipswitch survey, 69% of all IT professionals who responded said that they use unencrypted emails and attachments to send highly sensitive or regulated information—the type of information that would legally require a data breach notification under most states' laws. Of those surveyed, 62% said they do have security policies that indicate how files may be shared or must be secured, but 72% also indicated that the company has no way of tracking how files are moved internally or externally, so the information is not monitored or audited. Respondents said they use the unencrypted methods because of speed and convenience.

Changes In Federal IT Spending

The Senate Appropriations committee passed a spending bill (S. 3677) in the fiscal 2011 federal budget late last month that increased federal spending by $40 million for the implementation of Web services. The new Web services are designed to be used across all agencies to improve efficiency and collaboration between the agencies' systems. The Senate Appropriations committee cut back funding by $14 million, compared to the 2010 budget, for cloud computing that will help consolidate data centers and IT infrastructure throughout the federal agencies. Senators were concerned that the federal plan to consolidate data centers over the cloud lacked proper guidance.

HP On The Hunt For New CEO

The search is on for a new CEO for HP, following former CEO Mark Hurd's abrupt resignation earlier this month amid allegations of ethics violations and sexual harassment. A survey of 1,000-plus C-level technology and financial executives conducted by Cook Associates Executive Search indicates that about 43% feel the best replacement for Hurd would be someone coming from within HP itself or from IBM. Todd Bradley, presently HP's head of PC business, and Steve Mills, IBM's head of software, are two executives named most often as the best-suited to replace Hurd; HP CFO Cathie Lesjak, who is currently holding HP's CEO position, removed herself from the running. Only six of the 20 largest public companies were represented in the list of suggested replacements, and just 11% of those surveyed recommended a female for the position. Additionally, only a few candidates possessing an Asian or European background were suggested. The strongest statement from the survey is that 25% of those surveyed indicated an internal HP executive or board member would be ideal, rather than someone from another company. For its part, HP has hired executive search firm Spencer Stuart to help find an appropriate replacement.

Intel To Buy McAfee

Intel announced plans to acquire security software maker McAfee for $7.68 billion. Although the deal has been approved by boards of directors at both companies, McAfee shareholders and government regulators must also approve before the agreement is final. The chip manufacturer, based in Santa Clara, Calif., will pay $48 for each share of McAfee, also based in Santa Clara, and said it hopes to bolster its own security offerings with McAfee's help. The McAfee buy joins other recent Intel acquisitions, including the cable modem product line from Texas Instruments.

HP To Buy Fortify Software

HP announced that it has entered into a definitive agreement to acquire the San Mateo, Calif.,-based Fortify Software, a maker of security assurance software. According to a statement from HP, the acquisition will allow the company to "offer a complete, market-leading solution that helps organizations reduce business risk, meet compliance regulations, and protect against malicious application attacks by integrating security assurance seamlessly across the application life cycle." Fortify's leadership in static application security analysis coupled with HP's expertise in dynamic application security analysis will produce a best-in-class solution for organizations to improve application and service security, says HP's Bill Veghte, executive vice president of software and solutions. The companies previously collaborated in 2009 on Hybrid 2.0, a security-analysis technology. Terms of the acquisition weren't released.

AIT Files Motion Against Dell

Advanced Internet Technologies has filed a motion against Dell in the ongoing lawsuit between the two companies. In the motion, AIT charges that Dell purposely withheld documents that could prove Dell willfully sold OptiPlex computers with faulty capacitors, an accusation Dell has denied. AIT filed a lawsuit against Dell to recoup millions of dollars from cancelled contracts and discounts AIT says were a result of the problematic OptiPlex computers. According to previous reports, there is evidence that some Dell executives knew about the faulty PCs. The problem, which also plagued other PC makers, has been corrected and no longer exists.

WATCH THE STOCKS

This information provides a quick glimpse of current and historical stock prices and trends for 13 major companies in the technology market.

Company	Symbol	Year Ago	Aug. 5 $	Aug. 19 $	% change from previous issue
AMD	AMD	$3.52	$7.50	$6.42	▼ 14.4%
CA Technologies	CA	$22.63	$19.79	$18.39	▼ 7.07%
Cisco Systems	CSCO	$21.89	$24.17	$22.22	▼ 8.07%
Dell	DELL	$14.55	$13.13	$12.04	▼ 8.3%
Google	GOOG	$460.41	$508.10	$467.97	▼ 7.9%
HP	HPQ	$43.98	$46.35	$40.76	▼ 12.06%
IBM	IBM	$118.95	$131.83	$128.50	▼ 2.53%
Intel	INTC	$18.71	$20.67	$18.90	▼ 8.56%
McAfee	MFE	$41.73	$32.51	$47.01	▲ 44.6%
Microsoft	MSFT	$23.67	$25.37	$24.44	▼ 3.67%
Oracle	ORCL	$21.94	$24.29	$23	▼ 5.31%
Red Hat Software	RHT	$21.93	$33.25	$31.41	▼ 5.53%
Symantec	SYMC	$15.35	$13.09	$13.37	▲ 2.14%

NOTE: This information is meant for reference only and should not be used as a basis for buy/sell decisions.

News

iPass Reports On Mobility Expenditures

According to a white paper released by iPass, a mobile services provider, companies are spending an increasing amount on enterprise mobility. The white paper cites a Gartner study that shows that costs associated with mobility account for about 20% of an overall IT budget. Growth in mobility spending is not expected to slow down, either. A recent iPass survey (which is also cited in the white paper) reported that 42% of respondents believe "mobile connectivity will likely outpace inflation with an increase of at least 5% over the coming year." The same survey reported that 30% think those costs would rise by more than 10%.

PCI DSS 2.0 Imminent

Version 2.0 is coming for the PCI DSS (Payment Card Industry Data Security Standard). The PCI Security Standards Council, or PCI SSC, plans to publish the final version of the new standard on Oct. 28. Proposed changes include centralized logging support, a more vigorous role for initial scoping efforts to ascertain the locations of cardholder data, and canonization of a risk-tolerance approach to give organizations more flexibility in dealing with potential vulnerabilities. PCI DSS 2.0 will also align more closely with PA-DSS, the Payment Application Data Security Standard, for which the Council also announced updates.

DRAM Price Hikes Possible

Server and PC memory might become significantly more expensive in the latter half of this year should a potential shortage of dynamic RAM come to pass, according to research firm iSuppli. Last year, only a few DRAM chipmakers defied the recession to buy the equipment necessary to make the most competitive chips, especially immersion lithography gear, iSuppli says. This year, with computers in high demand, memory manufacturers have struggled to keep up. Factor in difficulties in squeezing out high chip yields from new, smaller process technology, and the signs point to a shortage and higher pricing.

Gov. Schwarzenegger Endorses Telehealth

U.S. Chief Technology Officer Aneesh Chopra and California Governor Arnold Schwarzenegger have both put their support behind the CTN (California Telehealth Network), part of the state's $60 billion infrastructure development program. The CTN will be the largest telehealth broadband network in the nation and will support videoconferencing between doctors and patients. The $30 million project is a collaboration of the FCC, CETF (California Emerging Technology Fund), California Healthcare Foundation, UnitedHealthcare, and various other backers, both public and private. According to Eric Brown, California Telehealth Network executive director, the first 50 network sites will launch in the next several months.

Dell, HP Duel For Storage Company

Dell and HP have begun a bidding war for 3PAR, which makes virtualized data storage arrays. Dell placed the first bid, for about $1.15 billion, under which it would purchase all shares of 3PAR's outstanding common stock for $18 per share—nearly twice as much as the stock's closing price prior to the acquisition announcement. A week later, HP submitted a bid of $1.6 billion, or about $24 a share. Dell says the purchase will help its customers capitalize on the "Virtual Era," while HP says 3PAR technology will become part of HP's Converged Infrastructure. Both HP and Dell say the deal could close before the end of this year.

Survey Notes Open-Source Usage, Concerns

More than 75% of systems administrators at large enterprises prefer to use open-source technologies when possible, but lack of support and poor documentation hinder open-source adoption. Open-source software maker Zenoss made the findings in its annual 2010 Open Source Systems Management Survey. Survey respondents ranked their average satisfaction level with open-source software between seven and eight on a scale of one to 10, and 71% say that open-source software is easier to deploy. In other findings, 50% of survey respondents are using some form of cloud technology, and monitoring, configuration management, patching and provisioning, and security made the list of top IT management priorities for this year.

U.S. Broadband Growth Smallest Since 2004

The adoption of broadband in the United States grew by 5% during the past year, which is the smallest increase since 2004, according to the Pew Research Center's Internet & American Life Project. About 66% of U.S. adults subscribe to broadband at home, while the survey indicates that the remaining adults who do not subscribe to broadband have no interest in getting online. Of those surveyed, 11% said expanding broadband availability should be a top priority for the U.S. government, 30% said it should be a lower priority, and 26% said the government should not spend any money on broadband.

Symantec: Spam Up Year-Over-Year

According to Symantec's July spam and phishing trends report, 92% of all email messages are spam. Last year at the same period, 89% of all emails were spam. Between June and July, however, spam containing phishing attacks dropped by 5%. Additionally, although the number of unique phishing Web sites dropped by 60% between June and July, the number of unique URLs used in phishing attacks ballooned by 10%. During that period, phishing sites in languages other than English, particularly in French and Italian, have increased to the tune of 15%. This time last year, Barack Obama and Michael Jackson were popular spam hooks, but this year, spammers are attempting to lure victims using the World Cup and the promise of BP oil fund cash in the subject line.

McAfee Cybercrime Report Calls For Action

The security experts at McAfee are urging businesses and organizations to take more initiative in fighting cybercrime. Suggested strategies include shaming cybercriminals by releasing their names publicly, working to increase the monetary damages incurred by captured cybercriminals, shutting down more affected domains, creating better spam filters, closing unused email accounts, and freezing accounts that are tied to suspicious activities. McAfee also calls on the ICANN (Internet Corporation for Assigned Names and Numbers) to clamp down on the accreditation of registrants that sell the domains to cybercriminals. McAfee points to routing traffic around known bad networks and actively disabling botnets, referred to as a "Shun and Stun," as tactics that have been successful in the past. McAfee further proposes cross-border cooperation as key to prosecuting foreign cybercriminals.

IBM Buys Unica For $480 Million

IBM says it has agreed to buy marketing software maker Unica for about $480 million, a move that will strengthen IBM's advertising services business. Unica uses predictive software and management systems to help customers analyze and plan their marketing strategies. The Waltham, Mass., company employs 500 people and has about 1,500 clients, including US Cellular and Best Buy. The deal is expected to close in the fourth quarter. This is the latest of about 60 acquisitions IBM's software unit has made since 2003. IBM CEO Sam Palmisano has said he plans to spend about $20 billion on acquisitions in the next five years.

Yahoo! Search Now Powered By Bing

A year after signing a search outsourcing deal, Microsoft and Yahoo! are collaborating to deliver a new Yahoo! search engine powered by Bing. Yahoo! has already started transitioning all users to a Bing-powered search engine in the United States and Canada. When users see the "Powered By Bing" logo at the bottom of the Yahoo! search results page, Microsoft will have provided the back-end crawling, listing, and ranking technologies to generate the list. The companies are working together to meet a mid-October deadline for full collaboration to begin—which includes the retraining and relocating of employees.

Oracle Sues Google Over Java

Oracle has filed a complaint against Google, claiming that Google has repeatedly violated Oracle's intellectual property, specifically as it pertains to Java. Oracle has filed a complaint for patent and copyright infringement, asserting that parts of Google's Android operating system owe to Oracle technology, including (but not necessarily limited to) the Dalvik VM and the Android software development kit. The story has a slight twist, however, as Google CEO Eric Schmidt oversaw Java's development years ago as an employee of Sun Microsystems, which Oracle acquired in 2010.

VirnetX Sues Cisco, Apple, Others

Internet security and software company VirnetX announced that it has filed complaints and is seeking damages against several companies, including Aastra Technologies, Apple, Cisco, and NEC, for allegedly violating five of the company's patents, including its virtual private network technology. VirnetX is seeking damages as well as an injunction blocking the named entities from using its technology. The company recently settled a similar dispute with Microsoft over its virtual private network technology, which ended a court battle reaching back to 2007.

NetApp Sees Healthy Revenue Growth

NetApp announced that its first-quarter revenue grew 36% over the same time last year, with total sales seeing a 51% growth. The 2011 fiscal year started off well for the company, which saw a nearly $300 million increase in sales. Most of the growth has been attributed to the cloud computing partnership NetApp has formed with Microsoft and other companies. NetApp isn't complacent with its current growth and anticipates an increase in sales and revenue quarter-over-quarter for the rest of the fiscal year.

Upcoming IT Events

Are you looking to learn more about data center or IT topics? Network with some of your peers? Consider joining a group of data center professionals. If you have an event you'd like listed, please send an email to feedback@processor.com.

- AUGUST -

ISSA Inland Empire
Aug. 31, 11:30 a.m.
Coco's Restaurant and Bakery
60 West Foothill Blvd.
Upland, Calif.
ie.issa.org

- SEPTEMBER -

Greater Wheeling AITP
Sept. 8
Wheeling, W.Va.
www.aitp-wheeling.org

ISSA Central Pennsylvania
Sept. 8
Harrisburg University of Science and Technology
326 Market St.
Harrisburg, Pa.
centralpenn.issa.org

ISSA San Diego
Sept. 8
San Diego, Calif.
www.sdissa.org

Southern New England SQL Server User's Group
Sept. 8
www.snessug.com

AITP Washington D.C.
Sept. 9, 6:30 p.m.
Alfio's Restaurant
4515 Willard Ave.
Chevy Chase, Md.
aitpwashdc.ning.com

ISSA Northeast Ohio
Sept. 9
Cuyahoga County Library-Parma South
7335 Ridge Road
Parma, Ohio
www.neoissa.org

SQL Server Society of Las Vegas
Sept. 9
The Learning Center of Las Vegas
777 North Rainbow
Las Vegas, Nev.
sssolv.com

SpecTECHular 2010
Sept. 9, 9 a.m.
New Horizons Kansas City
9611 E. Metcalf Ave.
Overland Park, Kan.
www.nhcomputerlearning.com/Spectechular

BICSI Fall Conference
Sept. 12-16
MGM Grand Hotel & Convention Center
Las Vegas, Nev.
www.bicsi.org/fall

Hosting Transformation Summit
Sept. 13-15
Caesars Palace
Las Vegas, Nev.
www.hsvsummit.com/na/2010

AITP Garden State
Sept. 14
Jim Johnston's Steakhouse
58 Eisenhower Parkway Mountain Plaza
Roseland, N.J.
tech.groups.yahoo.com/group/aitpgardenstatechapter

AITP Richmond
Sept. 14
2015 Staples Mill Road
Richmond, Va.
www.aitprich.org

ISSA New England
Sept. 14
Weymouth, Mass.
www.issa-ne.org

PASS Wisconsin SQL Server User's Group
Sept. 14, 4:30
Microsoft Office
2176 Woodcrest Drive
Green Bay, Wis.
wisconsin.sqlpass.org

For more Upcoming IT Events, see page 8.

PRODUCT RELEASES

The *Processor* Product Releases section includes brief overviews of data center products.

All products listed have been released recently, so use this section to get up-to-date with what's new on the market and to find products you need.

Manufacturers:
Do you have a new product that data center/IT managers would be interested in learning about?
Send your press release or product information to press@processor.com.

PHYSICAL INFRASTRUCTURE

Emerson Avocent Virtual Advanced Console Server 6000

Emerson released the Avocent Virtual Advanced Console Server 6000, which provides secure, remote data center and out-of-band management of virtual assets. Additionally, the ACS v6000 provides comprehensive, centralized management for authorized users to access enterprise resources, and it keeps virtual assets available all day every day while enforcing security measures.

NETWORKING & VPN

Attachmate Reflection Standard Suite 2011

Seattle-based Attachmate released the latest version of its terminal emulation software suite, which is aimed at securely connecting browser and Windows platform users to legacy applications. Attachmate Reflection 2011 connects Windows users to legacy applications running on IBM System z, IBM System i, Unix, and OpenVMS hosts. It supports Windows 7, Windows Vista, and Windows Server 2008 R2, as well as other current operating systems.

Apcon TITAN EnterPoint Software

Apcon announced its latest version of TITAN EnterPoint software for enterprise network monitoring. Users are alerted of switch status change, and a single interface allows for simple and fast switch management. Other aspects include dashboard monitoring, Apcon IntellaFlex Packet Aggregator system, and streamlined features such as broad connectivity, bandwidth management, and a filtering screen.

Barracuda Networks SSL VPN 880

Barracuda Networks announced the Barracuda SSL VPN 880, a tool designed to offer disaster-proof VPN access for medium-sized and large enterprises. For a set fee of $24,999, the 880 offers VPN access to up to 1,000 concurrent users with no per-user fees, ensuring company-wide access to the business network in the event of an emergency or unplanned event.

Coyote Point Systems Equalizer OnDemand ADC

Coyote Point Systems released the Equalizer OnDemand virtual ADC (Application Delivery Controller) designed for SMEs running VMware. Primary features include intelligent Layer 4-7 load balancing, advanced traffic management, content-based routing, HTTPS/SSL secure transactions, and VLB technology for VMware management and optimization.

ManageEngine Applications Manager

ManageEngine announced enhanced features to the ManageEngine Applications Manager, designed to strengthen the software's cloud monitoring capabilities. Upgraded features give IT administrators insight into the health and performance of their PostgreSQL database servers and Memcached servers in order to quickly detect problems. ManageEngine Applications Manager is available as a downloadable file starting at $795.

Quest Software Active Directory Bridge Technology

Quest Software announced the latest version of Active Directory Bridge Technology, which includes Quest Authentication Services. With this technology, Unix, Linux, and Mac users are able to act as full citizens within Active Directory. This lets administrators extend the authentication, authorization, and administration infrastructure of Active Directory to the entire enterprise.

Silver Peak Systems NX-8000 & NX-9000

Silver Peak Systems announced the availability of hardware variants of the NX-8000 and NX-9000 appliances that maximize WAN optimization performance

while minimizing the environmental costs associated with data center deployment. The NX-8000 and NX-9000 offer hardware features for SLC SSDs into the WAN optimization appliances, and both feature a 2U form factor to minimize rack space. All of SilverPeak's data center appliances now support 10Gbps fiber interfaces, which gives enterprises more flexibility in how they deploy WAN optimization. The NX-8000 and NX-9000 support OC-12 and provide simultaneous user sessions for up to 256,000 per device.

SolarWinds Orion IP SLA Manager v3.5 & Orion NetFlow Traffic Analyzer v3.7

SolarWinds launched updates for its Orion IP SLA Manager and Orion NetFlow Traffic Analyzer modules, which enable IT to effectively manage and monitor the distributed enterprise. Orion IP SLA Manager v3.5 now supports the Cisco ICMP Path Echo and ICMP Path Jitter. Orion NTA v3.7 now supports a faster Web interface and updated resources and reports.

Sybase Replication Server

Sybase announced new features for the Sybase Replication Server, designed to reduce latency with moving data between enterprise information stores. The Replication Server's upgraded features include real-time loading for Sybase IQ; advanced performance services using HVAR (High Volume Adaptive Replication) technology; replication across heterogeneous database environments; and in-memory database replication.

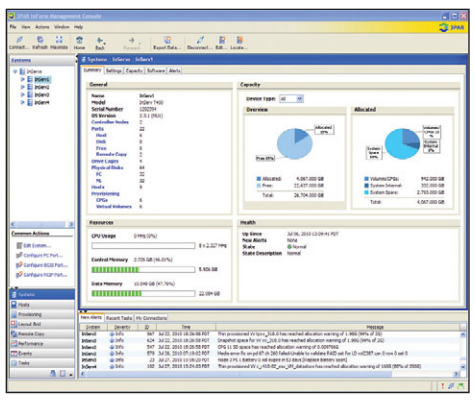
VMware SpringSource Hyperic 4.4

VMware released SpringSource Hyperic 4.4, a software solution for managing and monitoring custom applications. Featuring enhanced integration with VMware vCenter Server, Hyperic 4.4, part of the SpringSource software suite, can now keep a continually updated inventory of VMware vSphere ESX and ESXi hosts to let IT administrators find, correct, and prevent performance problems with applications across physical, virtual, and private cloud settings. The software offers in-depth, real-time performance on 75-plus technologies that developers use to create Web apps, thus letting Hyperic 4.4 users know if the apps meet service-level commitments via reduced app downtime and better performance.

STORAGE

3PAR InForm Management Console

The 3PAR InForm® Management Console helps businesses more easily manage their 3PAR InServ® Storage Servers. Within a single management window, users can administer all connected InServ arrays and configure remote replication with 3PAR® InServ T- or F-Class Storage Servers, or with a combination of 3PAR arrays. Users will find a dashboard view of all connected arrays, complete with graphical charts and tables of important



3PAR

system information. Support for 3PAR Remote Copy software provides for autonomic configuration of disaster recovery. The console is integrated with the 3PAR InForm Operating System and other standalone 3PAR applications, such as Thin Provisioning, Virtual Copy, Dynamic Optimization, and Virtual Domains. For more on this product, see page 31.

BlueArc SiliconFS 7.0

BlueArc released SiliconFS 7.0, a hardware-accelerated file system software. SiliconFS 7.0 features metadata management for cost and disk efficiency and file system enhancements that allow scaling up to 16 usable petabytes on a single node or cluster. The metadata handling option lets customers use fewer high-performance disks combined with low-cost disks.

Bus-Tech MDL-100S

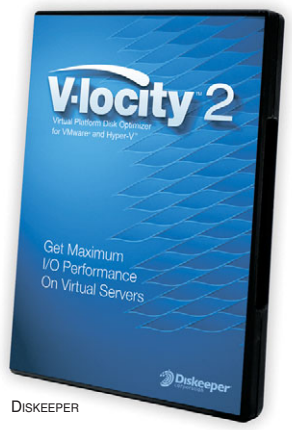
Bus-Tech announced performance and feature upgrades to its MDL-100S tape emulator. The appliance provides mainframe Virtual Tape Library functionality to small to medium-sized mainframe environments. The latest release offers multiple data protection options, 9TB of RAID storage, and a 3:1 compression ratio with more than 25TB of storage for tape data, which is equivalent to about 12,500 3490E cartridges.

CMS Products Instant Server Recovery Solutions

CMS Products announced a suite of Instant Server Recovery solutions for SMEs. Designed to reduce downtime, the tool consists of a two-drive desktop storage device that supports RAID 0 and 1 and is available in 2TB or 4TB capacities. Users can restart their server from the backup hardware in the event of an outage.

Diskeeper V-locity 2

Diskeeper's new V-locity 2 virtual platform disk optimizer is designed for both Windows 2008 servers with Hyper-V and VMware ESX servers with version 3.5 or later. V-locity 2 features Diskeeper's IntelliWrite technology, which helps



DISKEEPER

prevent up to 85% of fragmentation before it can happen. It also uses InvisiTasking technology, which allows V-locity to run invisibly in the background with no impact on a system. Virtual Disk Intelligence automatically detects and configures based on virtual disk type such as VMware Linked Clones and Microsoft Differencing Disks, while Virtual Disk Compaction makes it easy to consolidate free space holes into useable storage. For more on this product, see page 39.

LaCie 5big Backup Server

LaCie released the 5big Backup Server for small office environments. The server features a 640-bit Intel Atom processor and Microsoft Windows Home Server Software. The 5big ($1,199.99) has full compatibility with Mac environments, plus five hot-swappable hard drive bays with capacities up to 10TB. It's also expandable via USB and eSATA ports.

LaCie 5big Storage Server

LaCie introduced the LaCie 5big Storage Server, which is a desktop file sharing server ideally suited to the demands of small to medium-sized office environments. The 5big Storage Server supports connections to multiple Mac-, Windows-, or Linux-based systems. Features include Intel's latest 64-bit dual-core 1.6GHz Atom processor, 2GB of RAM, and Microsoft Windows Storage Server 2008 Standard Edition. Supported file formats include SMB, NFS, AFP, iSCSI, HTTP, FTP, and Windows Active Directory. The 5big Storage Server ships with five hot-swappable hard disks; supports capacities up to 10TB; and also includes USB and eSATA ports for external expansion. The 5big Storage Server is available starting at $1,699.99.

Micron Real SSD P300

Micron just announced its RealSSD P300, which is a solid-state drive that is built to withstand the rigors of enterprise storage workloads. The RealSSD P300 is based on Micron's single-level cell NAND technology, supporting 6Gbps (gigabits per second) throughputs and up to 44,000 reads and 16,000 writes. The drive will be available in October in 50GB, 100GB, and 200GB capacities.

Pervasive Software Pervasive DataRush For KNIME

Pervasive Software announced the Pervasive DataRush for KNIME plug-in for high-throughput data mining. The modular, open-source platform supports high-speed analytic models, operators, and algorithms. KNIME integrates Weka data and supports R-scripts. The trial version of Pervasive DataRush for KNIME is free, but it's also available through annual subscription, perpetual license, or cloud-based subscription.

PRODUCT RELEASES

■ Sans Digital TowerRAID TR4UTP, TR4UT-BP, TR5UTP, TR5UT-BP

Sans Digital released four- and five-bay RAID storage units that utilize SuperSpeed USB 3.0 as well as eSATA. Sans Digital says the TR4UT-BP and TR5UT-BP have five times better performance than previous models. The units come with two-port 6Gbps, eSATA PCI-E adapters. They support RAID 5/3/10 and other configurations.

■ Symantec Backup Exec 2010

Symantec has updated its Backup Exec 2010 to let users cut installation time by up to 20% via enhanced wizards; provide in-product help for optimal Windows data recovery; and provide platform support, including for Microsoft SharePoint 2010, Exchange 2010 SP1, SQL 2008 R2, Mac OS X 10.6, and VMware vSphere 4.1.

SECURITY

■ Check Point Application Control Software Blade

Check Point announced Application Control Software Blade, which enables organizations to secure and manage the use of Web 2.0 applications in the enterprise. The software integrates Check Point's UserCheck technology to include employees in the decision-making process and enables IT administrators to customize application usage policies. Application Control Software Blade incorporates granular application control to identify, allow, block, or limit applications beyond ports and protocols; an application library with AppWiki to scan and detect more than 4,500 applications and more than 50,000 Web 2.0 widgets; integrated security gateways; and central management to keep security policies managed from a single console for easy administration.

■ Check Point Global Policy & Security Domain Multi-Domain Management Software Blades

Check Point introduced the Global Policy and Security Domain Multi-Domain Management software blades, which can be customized to suit the virtual security management needs of any size organization. Check Point's offerings can also be deployed as dedicated SMART-1 appliances that require minimal configuration.

■ Check Point Series 80 Appliance

Check Point announced its Series 80 Appliance that provides software blades with email security software, firewalls, IPS, VPN, antivirus and anti-malware, and URL filtering. While using a Check Point Security Management console, the Series 80 Appliance can be activated from a central location and deployed across multiple branches.

■ CoSoSys My Endpoint Protector App

CoSoSys launched the My Endpoint Protector App for iPhone, iPad, and iPod touch, which provides real-time control monitoring and the ability to stop data theft or data loss, identity theft, and malware infections. The app also lets users manage computers through a centralized console and monitor sensitive files regardless of location.

■ Compliance Manager For File Shares

Courion's Compliance Manager for File Shares is a complete access assurance solution for file shares that identifies specific file shares, offers risk assessments of those file shares, and helps determine appropriate user access. The solution's primary features include the RiskAppraiser™, which quickly evaluates your environment; risk scoring to ensure you're implementing controls commensurate with risk; ownership

COURION

identification to find responsible business owners of file shares; and certification to automate the review of access and remediation in a business-friendly manner. Courion's Access Assurance approach to identity, access, and compliance management combines Access Governance, Access Provisioning, and Access Compliance to ensure efficiency, transparency, and security throughout a single environment. For more on this product, see page 35.

■ e-DMZ Security Total Privileged Access Management

The TPAM suite from e-DMZ Security received a free improvement, the company says. Deployable on an appliance or in a loosely coupled form, TPAM now offers the ability to route system administrator account management SQL traffic to a database server over a secure SSH tunnel with DSS key authentication support. e-DMZ says this enhancement is a very cost-effective, secure access solution compared to the security packages on offer from various database vendors. In addition, the company says, the SSH method of remote management access doesn't slow down the performance of the database.

■ Fortinet FortiWeb-1000C & 3000C

Fortinet announced the FortiWeb-1000C and 3000C line of Web application firewalls. The 1000C is designed for mid-sized to large enterprises while the 3000C is for high-end enterprises and cloud-based service providers. They feature policy wizards, advanced alert tools, enhanced protocol constraints, and extended signatures and DLP.

MESSAGING & TELEPHONY

■ GlobalSCAPE Mail Express

GlobalSCAPE announced enhancements to its Mail Express managed file transfer product. Designed to improve end-user and IT administration productivity, Mail Express allows users of Microsoft Outlook to send and receive large files on demand. Features include user-defined usage policy and resumable uploads, the ability to exchange large files with no training required, two-way file sharing and collaboration, enhanced workflow, a simplified deployment process, and regulatory compliance and governance for privacy and security. Other features include greater visibility into email-based file movement, robust tracking and auditing, centralized policy management, and storage cost reduction.

■ Proofpoint Enterprise Archive

Proofpoint has upgraded its Proofpoint Enterprise Archive SaaS email archiving product with full support for Microsoft Exchange Server 2010. The company also added enhanced legal hold functions that streamline the e-discovery process and add enhanced search abilities. Enhanced functionality includes automatic data preservation in active legal holds vs. manual methods, near real-time e-discovery search, and EDRM XML support.

■ Tenmiles Teamtalk

Tenmiles released Teamtalk, a secure online instant messaging application that enhances a teams' ability to work together on projects or production work. Teamtalk lets business people chat, hold conferences, share images and files, and do Web demos. For security, the instant messaging tool uses SSL encryption for all of the communications and file transfers that it handles.

SERVERS

■ Portwell CAR-4003 1U Communications Appliance

Portwell released the CAR-4003 1U, its newest communications appliance. Based on the quad-core Intel Xeon Processor 3400 series, the CAR-4003 1U supports four DIMM slots (high-speed 1,333MHz dual-channel DDR3 ECC memory), dual-port 10G availability, and two PCI-E x8 modular interfaces. The appliance also provides Intelligent Platform Management Interface v2.0 remote management functionality.

CLIENTS

■ Kensington Wall Laptop Power Adapters

Kensington has added two adapters to its power accessories line. Both the Wall Laptop Power Adapter ($69.99) and Wall Laptop Power Adapter With USB Power Port ($79.99) are Energy Star-qualified and are universally compatible with notebooks from HP, Compaq, Dell, Lenovo, Gateway, Acer, Asus, and Toshiba, among others. Both offer over-current, over-voltage, short-circuit, and over-temperature protection.

■ Lenovo ThinkCentre M70e & A70

Lenovo released the ThinkCentre M70e (starting at $559), an entry-level PC for enterprises, and the A70 (starting at $379), a PC for businesses looking to improve processing, memory, and graphics. The models come in tower and SFF designs and include a handful of Intel CPU choices, Nvidia or Intel graphics, and up to 1TB storage with the M70e.

■ LXE Marathon

LXE released the Marathon field computer. It is smaller than a laptop, but it boasts a larger screen and more power

LXE

than what is offered by a PDA or smartphone. It has several data-capture and connectivity choices and a rugged exterior so you can take it anywhere. On the inside, you'll find an Intel Atom processor that offers support for either Windows 7 or Windows XP. The Marathon weighs less than a kilogram and also features an outdoor-visible touchscreen, a mouse that doubles as a fingerprint reader, a high-resolution camera, and a full QWERTY keyboard.

■ NextComputing NextDimension TravelRad

NextComputing announced a small, briefcase-sized workstation computer called the NextDimension TravelRad that is designed to allow radiologists to perform diagnostic reads anywhere. The TravelRad features two detachable, high-resolution displays to facilitate reading and reporting of images from remote locations. The TravelRad is designed to solve the problem of remote viewing and reporting, as even high-end laptops often can't handle the computing needs of radiologists, forcing them to work from an office or medical facility. The TravelRad is small enough to fit in the passenger section of an airplane and can be used anywhere the user has power and an Internet connection.

■ Oracle Enterprise Pack For Eclipse 11g

Oracle released an updated version of its Enterprise Pack for Eclipse, which is a Java development platform. The offering now supports Oracle WebLogic Server administration capabilities, Oracle GlassFish Server, Oracle Coherence, Eclipse 3.6, essential Java Platform, and Java Enterprise Edition tools.

■ Oracle Virtual Desktop Infrastructure 3.2

Oracle released its Virtual Desktop Infrastructure 3.2 that features global hot-desking, enhanced video and audio capabilities, multicompany capabilities, and administrative enhancements. The VDI 3.2 is compatible with many operating systems including Windows 7, Oracle Enterprise Linux, and Ubuntu and also has support for VMware vSphere and Microsoft Hyper-V.

■ SAP AG Business ByDesign

SAP AG announced the availability of feature pack 2.5 for the SAP Business ByDesign, which is a fully integrated, on-demand business management suite. SAP also announced the introduction of three predefined starter packages that provide customers a starting point for their adoption of the complete SAP Business ByDesign solution.

SERVICES

■ Iron Mountain Consulting

Iron Mounting created the Iron Mountain Consulting practice to provide customer advice, manage data, meet industry regulations, and prevent IT disasters. Offering customers solutions that address best practices to ensure less cost and complexity, Iron Mountain Consulting includes consultation records management, information management, and ediscovery management. The Records Management offering tackles classification schema, retention destruction, and compliance monitoring. Information Management covers risk assessment, data mapping, and management strategies. eDiscovery Management includes litigation preparation, dispute guidance, and dispute advisory services. Iron Mountain Consulting consists of 70 IT professionals, such as attorneys, electrical engineers, linguists, and project managers.

■ Microsoft Services Premier Mission Critical

Microsoft Services released an expanded Premier Mission Critical add-on to help customers meet support requirements for demanding solutions. As a server and support program for Premier Support, Premier Mission Critical manages risks through validation and review, enables remediation and knowledge transfer though a Microsoft Solution Engineer, and provides rapid problem resolution.

Inside The Storage Refresh Cycle

Continued from Page 1

(www.dmdsystems.com), the correct time to upgrade or refresh storage equipment should depend on your company's policy. For example, some companies have a three-year refresh cycle, others have a five-year cycle, and still others simply run the equipment until it dies.

"While there are advantages to each option, companies must choose the method that limits their downtime and maximizes their budgets," McKay says. "Companies also need to take into consideration virtualization and software requirements when analyzing the equipment they are currently using."

He adds that the length between storage refreshes can affect not only the ability to reliably access data, but also to make money from older equipment—3-year-old equipment might still hold value, but older equipment might actually cost the organization money to remove. Other factors also come into play. Joel Hagberg, vice president of enterprise marketing for Toshiba America (www.toshiba.com), notes that storage upgrades depend on the application, the storage system architecture, storage device duty cycles, and component reliability. For example, a high-performance SAN/NAS system might be composed of 10,000rpm or 15,000rpm hard drives that can handle heavy workloads over a number of years.

"The drives in these systems typically exceed 1.2 million hours MTBF [mean time between failures] and can tolerate significant use over a three- to five-year period. But in many of these systems, the refresh to new higher-capacity, higher-performance drives occurs approximately every 18 months," Hagberg explains. "This would imply that a refresh cycle on a three-year program would be able to take advantage of two generations of hard disk performance and technology advances."

Yet even when timeframes are set for regular storage equipment refreshes, problems can crop up that can force IT staff to replace or upgrade devices before the regular refresh interval arrives. Hagberg says that if systems begin to noticeably slow down or if you hear significant changes in the audible seeking noise of storage devices, the equipment might be failing. Other potential signs of storage hardware failure include system lockups or freezes, unexpected system shutdowns, slow start-up times, and persistent system or application crashes.

"Other signs may point to a necessary upgrade but in fact may require something else," says Elaine Pleshek, senior manager at Crossroads Systems (www.crossroads.com). "In the area of data backup, issues with scheduled backups exceeding their allocated time windows may lead an IT manager to believe that a technology bump is needed when in fact the current infrastructure may be perfectly adequate and simply need to be reevaluated and adjusted. . . . It may be that newer, faster disks and tape drives are required, or it could mean that the storage network needs to be upgraded because the switch is now the bottleneck, or it could simply mean that configuration changes need to be made to better balance the system."

Be Proactive

A down economy tends to have a pervasive effect on the storage refresh cycle. Although IT managers might know it's best to have a proactive approach to upgrading or refreshing storage devices, a perpetual lack of funding might force them to follow a reactive strategy that lets equipment be replaced only when absolutely necessary. The good news is that as the economy slowly improves, the recommended proactive approach can again assume a more prominent role in the overall storage plan of IT organizations.

"Proactive planning is a proven strategy for saving money and reducing disruptions to business," Pleshek says. "Proactive planning should include not only solid visibility into the obsolescence roadmaps from the storage vendors but also a full understanding of the data growth and asset utilization within the IT manager's own infrastructure. In order to have a clear understanding of the efficiency of a storage environment, it is critical to have the monitoring and assessment tools in place."

Part of the proactive process involves looking at both current technology and innovations that are on the horizon. For example, Pleshek says that in terms of tape storage, most technologies are capable of reading media written by up to two earlier generations. With this in mind, the release of LTO-5 tape technology should prompt administrators who currently use LTO-2 and LTO-3 infrastructures to start planning upgrades before their data can no longer be read.

"The goal of looking forward and anticipating growth will provide a realistic framework for businesses to accelerate as well as allocate resources where they're needed," says Lee Johns, marketing director for unified storage at HP StorageWorks. "By planning ahead with storage upgrades, businesses can consolidate technology assets into pools of resources that can be leveraged on the fly, managed universally, and optimized for any workload." P

Identifying Virtual Gaps

As organizations make the move from physical to virtual infrastructures, gaps in storage infrastructures can materialize. Lee Johns, marketing director for unified storage at HP StorageWorks, lists the following signs that can help identify these gaps.

Availability. Assessing disaster recovery plans is an excellent way to evaluate storage infrastructure. Many older storage systems may include basic RAID or redundant controllers. A question to ask is whether a disaster recovery plan can be improved with features such as snapshots, local or remote replication, and multisite failover.

Manageability. The question here is how easily changes can be made to the storage infrastructure. In both physical and virtual environments, it is crucial that changes are made without disruption and in a way that does not increase management overhead.

Performance. If application performance is affected by new physical and virtual machines, there may be a need for an architecture that can scale both capacity and performance in a linear, rather than stair-step, model. This simplifies scalability and enables automatic load balancing.

Utilization. Rigid storage infrastructures result in underutilization. This becomes particularly apparent when deploying new virtual machines and evaluating the capacity allocated for new projects.

Security For Mobile Devices

Continued from Page 1

Hence, the need for some type of encryption. "Enforce encryption on smartphones used for company business," says Edy Almer, vice president of product management at Safend (www.safend.com). "That way if the device is lost, you know the data is protected."

Another way to protect a lost or stolen device is through the ability to wipe the phone clean or otherwise remotely control the data on the phone. However, not every phone has the same level of management capability, and it is one of the reasons companies consider providing (and choosing) a device, says Chris Hazelton, research director at The 451 Group. "BlackBerry continues to be the top choice of companies who have to access confidential information through a mobile device, because there are over 450 management policies for the BlackBerry device." That's compared to less than 20 management policies for iPhone and even fewer for Android.

The hype of the iPhone 4 points to another potential risk. "There are workers who are buying new phones every year, with expectations of the phone having access to corporate information," says Frank Kenney, a former Gartner analyst who is now vice president of global strategy at Ipswitch File Transfer (www.ipswitchft.com). "If I don't give them access in a proper way, they'll create proxies or look at other technologies to give them that access. That's when we get into trouble."

It's better to use what you have for a while longer or at least wait until the upgraded phone is on the market long enough for the IT and security folks within the company to come up with a security plan.

And that leads to governance issues and risk. "We need to know exactly which employees are on the network and which employees are using resources through their mobile device," Kenney says. "I have to build better governance capabilities around the data they are accessing so I can see where they are coming into the network and how they are using the network. The worst thing you can do is just say you have control so no one will do anything I don't want them to do. That's naïve, and it won't work."

Attacker Focus

Attackers are also focusing more effort on mobile devices. "There is a huge concentration of valuable data on mobile devices now," Thompson says. "And now there is the consolidation of platforms. We see iPhone OS emerging; Android is emerging as a big player. When you see more standardization of platforms, it makes it easier for an attacker to make a choice on where to spend their time."

Beware of app downloads and the information that is stored in them. Hazelton gives this example: "Citibank had an iPhone application that stored some banking information on the device in a secret file. That's since been removed on the latest update, but that information was stored on the phone." It's better to have information that is stored in the cloud, he says.

Antivirus companies are beginning to address the increasing potential of malware written especially for mobile devices. The software can add firewalls, block SMS spam, and provide theft/loss protection.

To best protect the device from security risks, Thompson says the first step is to understand that there is a risk. "People will think twice about lending a laptop to a friend or forgetting it in a bar, but there is a different behavior with phones. It's easier to forget it somewhere or loan it to someone."

And although there are plenty of warnings about doing sensitive work on Wi-Fi, smartphone users too often believe that they are insular to the risks. The basic rule of thumb, Thompson says, is if you wouldn't send data or visit a Web site on your laptop, don't do it on your smartphone.

Users are often lazy where phones are concerned, Kenney says. That's why it is important that enterprise security policies are regularly updated so they include any upgrades as well as new or emerging technologies such as the iPad.

"Employees need to accept the fact that more and more of their work life is being embodied in these mobile devices," Kenney adds. "And they can't be lackadaisical about using or leaving these devices just anywhere."

Mobile devices are still relatively new to the enterprise and the way business is conducted, and the vast majority of users haven't been breached. But as the use of mobile devices continues to grow and more employees take advantage of the phone to work outside the office, the risks are sure to increase. As The 451 Group's Hazelton says, "Better to actively manage your mobile devices and keep them from risk now, because the bad guys will surely take advantage if you don't." P

Key Points

- Phone loss is the biggest security threat to mobile devices.
- Encryption is one of the safest ways to protect data on your smartphone.
- Corporate leaders should know how employees are accessing the network through their mobile devices.

Tips For Improving Mobile Device Security

Matt Sarrel, IT expert for Allbusiness.com, provides the following tips for improving security on mobile devices:

- All corporate mobile devices should be managed by IT, or at least IT should set the security policy and make sure it is followed.
- Mobile devices are important not so much because of the device, but because of the data on them and the access they provide to server-based systems. The cost of a lost BlackBerry is nothing compared to the damage that could be caused by your entire client and senior management contact info being leaked.
- Mobile devices should require a password or PIN to be unlocked.
- Users should not store Web and intranet passwords on mobile devices.
- Encrypt built-in and removable storage.

Curb Wasteful Printing: Conserve Money, Time & Natural Resources

BY ROD SCHER

WE ALL KNOW THAT much of what we print is a waste of time, paper, and supplies. But recent studies point out just how much waste we're talking about: A 2008 UK report estimates that the typical employee produces about 22 pages of paper per day—most of which he does not really need. A recent Lexmark study reports that the U.S. government spends more than $1 million per day on unnecessary printing.

The aggregate costs of such waste are staggering, partly because of the often unaccounted-for trickle-down: Sure, paper and ink cost money, as do printers themselves. But what about the costs of disposing of or storing the printouts, or the costs of having IT staff deploy and maintain printers that are then used to print unnecessarily?

And why do we do so much printing in the first place? In one recent survey, employees cited three main reasons: First, most noted the need to have signatures on paper documents. Second, more than half responded that they needed to share hard copies of documents with others. Finally, staff and management alike commented on the need for a paper trail.

Possible Solutions

The needs cited by employees are real, but there are ways to address these needs while reducing unnecessary printing.

Set up a printing protocol. Formally communicate the expectations of your printing initiative. Encourage employees to print only when necessary, have them use duplex printing whenever available, and deploy apps that support digital signatures. In other words, put into place a printing policy. Ask employees for their ideas about what that policy should cover so that you can benefit from their experience and so that they can feel some ownership.

Share digitally. Sharing (and digitally signing) electronic copies of documents is easier than ever with the collaboration tools now built into various office suites and other document management tools. A "paper trail" need not be made of paper. You've already bought these collaborative applications; why not take advantage of tools you've already paid for?

Promote accountability. As part of the printing protocol, issue PINs to be used when printing or copying. This way the company can track who's printing what.

Consolidate printers. Desktop printers encourage waste and inefficiency, and they require additional setup and maintenance. Instead, look for ways to reduce and optimize the number of printers you deploy; that will decrease the cost of hardware, consumables, and maintenance. Instead of 25 desktop printers, each of which is only used occasionally throughout the day, why not have one networked—and centrally located—laser printer that's in use much of the time?

The Hard Sell

You would think that any undertaking that saves money even as it helps preserve the environment would be easy to sell to management, but analysts say that's not so. The aggregate cost of printing often slips under the radar, notes Info-Tech Research Group analyst Geoff Nielson. "One of the big issues is that it goes unseen," Nielson says. "No one's actually taking the initiative to be fully responsible for aggregate printing costs, so each department ends up in charge of its own. That means that you don't really get to see how this is impacting the organization." Getting executive buy-in can be difficult if there's no concrete dollar figure associated with your aggregate printing costs. Even though simple printing initiatives can save about 65% of an organization's printing costs, those initiatives remain a hard sell: "It's really tough to convince management when you can't give them a nice round number that they can work with," Nielson says.

Thus the issue becomes one of creating accountability. Absent an initial high-level buy-in, the creation of printing policies and the communication of potential printing-related savings becomes an iterative process in which the goal is to convince management that there's serious money at stake, as well as a chance to help the environment. P

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Upcoming IT Events

For more Upcoming IT Events, see page 3.

AFCOM Central Ohio
Sept. 15
Columbus, Ohio
www.afcomcentralohio.org

• • • • •

AITP Northeastern Wisconsin Chapter
Sept. 15, 4:15 p.m.
Holiday Inn Select
150 S. Nicolet Road
Appleton, Wis.
new.aitp.org

• • • • •

ISSA International Conference
Sept. 15-17
Georgia International Conference Center
2000 Convention Center Concourse
College Park, Ga.
www.issa.org/conf/?p=105

• • • • •

AITP Atlanta
Sept. 16, 5:30 p.m.
Crowne Plaza Atlanta Perimeter NW
6345 Powers Ferry Road NW
Atlanta, Ga.
www.aitpatlanta.org

• • • • •

AITP Greater Boston
Sept. 16
Phillip's Old Colony House
Dorchester, Mass.
www.bostonaitp.org

• • • • •

AITP Omaha
Sept. 16
Omaha, Neb.
www.aitpomaha.com

• • • • •

Community SANS Atlanta-Security 560: SANS Network Penetration Testing & Ethical Hacking
Sept. 17-22
Hilton Atlanta Airport Hotel
1031 Virginia Ave.
Atlanta, Ga.
www.sans.org/atlanta-2010-cs2/description.php?tid=3142

• • • • •

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COVER FOCUS

Storage: The Best Setup

Assess Your Needs & Look At What's Available To Find The Best Combination Of Technologies For Your SME

by Elizabeth Millard

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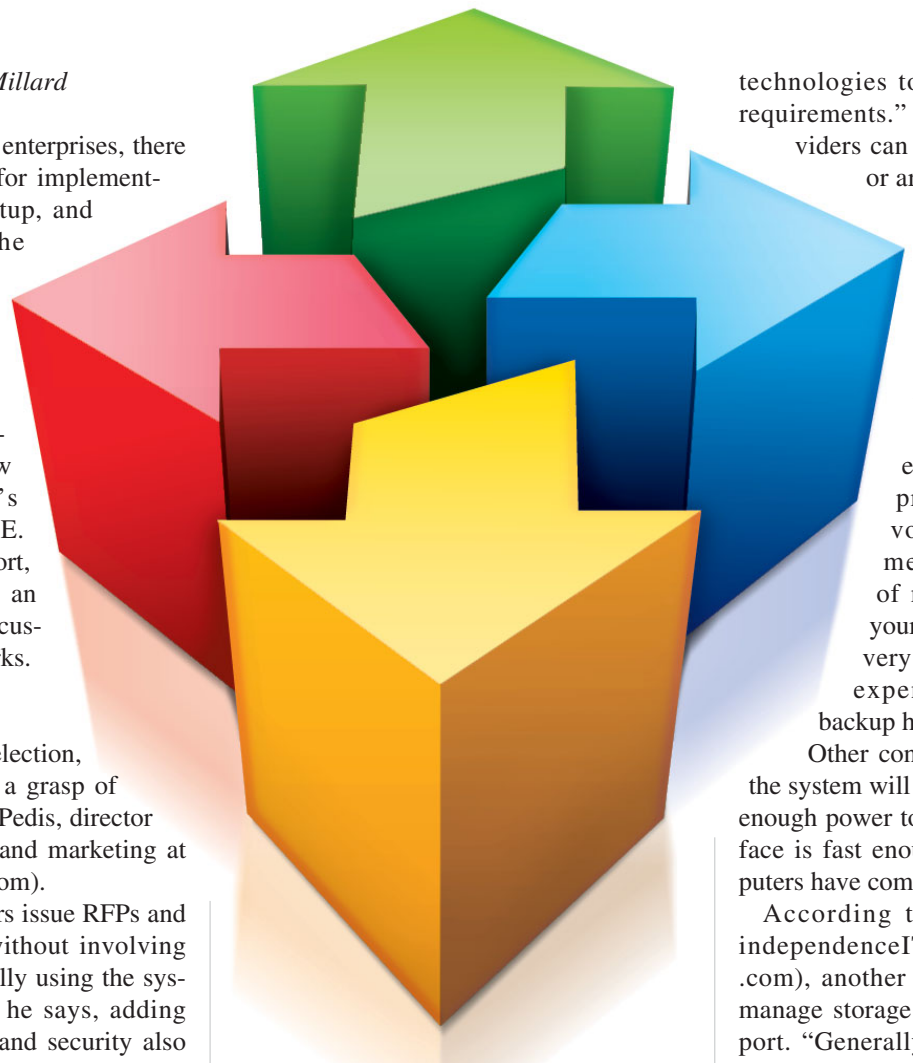

For small to midsized enterprises, there are quite a few options for implementing the ideal storage setup, and vendors abound as the technology changes and updates frequently. Although it can be heartening to have so many choices, it can also be daunting, as data center managers ponder how to select the setup that's best for a particular SME. However, with some effort, awareness, and research, an SME can have an ideal, customized solution that works.

First Steps

Even before vendor selection, an enterprise should get a grasp of user needs, notes Ron LaPedis, director of product management and marketing at SPYRUS (www.spyrus.com).

"Too many IT managers issue RFPs and listen to sales pitches without involving the people who are actually using the systems that IT supports," he says, adding that business continuity and security also need to be factored into the mix.

IT managers should also know what happens if a disk drive fails or data gets corrupted and whether the data needs to be protected from theft. LaPedis points out that public data doesn't need that type of antitheft protection, but it does have to be safeguarded against loss or corruption. Those types of questions and issues should drive the RFP and vendor process and will help to determine the type of setup that's needed.

With other departments, it's critical to understand recovery time objectives in order to get a sense of how long data can be unavailable and how "stale" it can be when it comes back. Also, information should be gathered about whether backups need to be done once a day or once a week, if real-time data replication to a remote site is necessary, and if regulatory issues come into play.

Another vital element in mapping storage requirements is to determine how much data is structured and how much is unstructured, with associated growth rates for each, notes Ahmar Abbas, senior vice president of remote infrastructure management for IT firm CSS (www.csscorp.com).

Key Points

- Understand user needs by talking with employees in all departments rather than relying only on vendor information.
- Systems should be chosen according to how much they cost over a product's lifetime rather than upfront costs.
- Consider both in-house and outsourced options and evaluate various technology platforms for storage types such as structured and unstructured data.

LaPedis also recommends that enterprises use a reporting tool to show storage trends, so a system can be set up that meets growing needs rather than always plays catch-up. For more information on planning for future storage requirements, see "Meeting Future Storage Needs" on page 12.

Weigh The Options

There are numerous products and services for everything from primary storage to backup, with features such as data recovery thrown into the mix. Depending on storage goals, an enterprise might opt for online shared storage, nearline backup storage, or offline archive storage.

"You can purchase individual disk enclosures that sit on a table or shelf or you can source rack-mounted enclosures that can hold dozens to hundreds of disks," LaPedis says. "Do you need to think about systems with redundant components, leaving no single points of failure?"

No matter what the form factor, LaPedis adds that a manager can configure them as individual volumes or as RAID volumes, which can protect data from a drive failure. For backup, the choice could be cloning disk drives, copying data to physical or virtual tape, or implementing a real-time data replication system. There's also storage in the cloud, although LaPedis believes that the opportunities for hacking are higher in that situation, and data may not be available when needed.

IT managers should also look at both in-house and outsourced options, notes Abbas. "When considering in-sourced options, IT managers should look at technology options for structured and unstructured data separately. Various technology platforms are optimized to handle the various types," he says. "In addition, IT managers should consider various virtualization and deduplication technologies to reduce overall storage requirements." Outsourced storage providers can be considered for backup or archives, he adds.

Key Issues

The bottom line, LaPedis notes, shouldn't be the upfront cost of the system, but the cost over the product's lifetime.

The total cost of ownership includes both the products and services involved, but also management, Abbas adds: "Cost of managing and operating your storage environment will very quickly overtake capital expense for the storage and backup hardware."

Other considerations include where the system will be placed, whether there's enough power to drive it, if the data interface is fast enough, and if existing computers have compatible interfaces.

According to Chip Buck, COO of independenceIT (www.independenceit.com), another key concern is who will manage storage implementation and support. "Generally speaking, a company's storage assets are not contained in one monolithic system," he says. "Training or developing a staff member or trusted vendor who understands all the components of storage in use is extremely important. Storage is not 'set it and forget it.' It doesn't require daily tinkering, but a methodical monitoring, maintenance, and management process should be followed to avoid surprises and data loss."

Additionally, there should be understanding around the life cycle of the company's information, with data classified according to its role, Buck notes. P

Common Storage Setup Missteps

It's easy to slip up when setting up a system as complex as a storage array. Here are some of the more common mistakes that you should avoid.

- Underestimating storage growth and not buying enough capacity
- Not recognizing the importance and value of corporate data
- Not protecting a storage system with an uninterruptible power supply
- Not verifying the accuracy of the system backup periodically by doing restore drills to ensure that data is readable and accurate
- Failing to understand the limitations of a computer data backup system
- Not backing up critical data that might be sitting on desktops and laptops rather than residing in the data center
- Failing to understand that, unless you're using a product that can back up open files, taking a data backup of a running application will create a corrupt image because of all of the changes to the database

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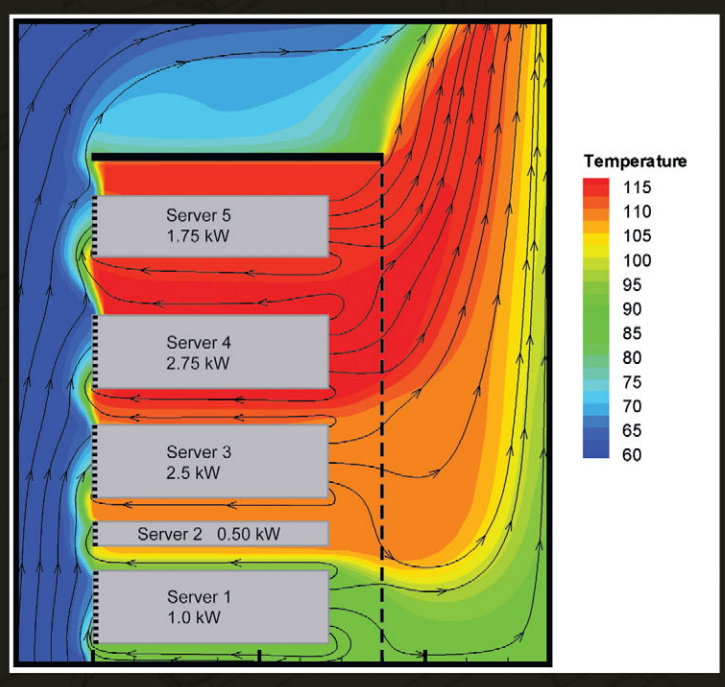

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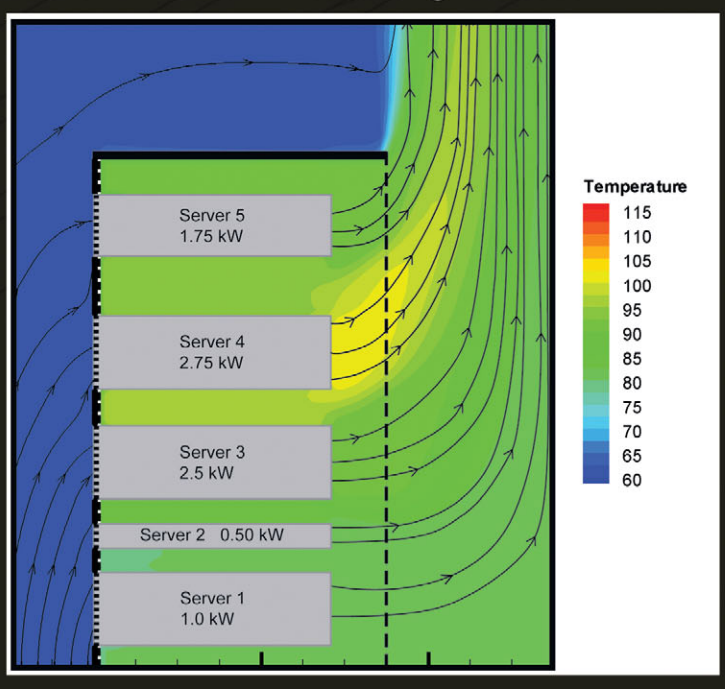

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News

Standard In The Works For Measuring PUE

The Green Grid and several other key organizations are working to create a new set of standards for data centers to use when measuring their PUE (power usage effectiveness).

"The PUE metric is the recommended metric for characterizing and reporting overall data center infrastructure efficiency," says Larry Vertal, executive director of The Green Grid. PUE is calculated by dividing the total energy entering the data center by the IT energy consumption, he says.

It's no secret that data center energy costs are continuing to rise. According to Vertal, this is forcing owners and operators to use energy efficiency metrics to focus more on the overall efficiency in their data centers. "However, the metrics are not always applied clearly and consistently," he says. Hence the need for a set of standards companies can use to acquire reliable results.

The Green Grid's standard includes four measurement categories that increase in accuracy based on level. "The Green Grid defined PUE usage so it could be implemented at different levels of precision, and measuring at the least precise level can give small and midsized data centers valuable information to control their destiny," Vertal says. The lowest level, called PUE Category 0, is demand-based and represents a data center's peak load over a 12-month period, he says. PUE categories 1, 2, and 3 are consumption-based calculations where the data center's load is represented by a 12-month kWh reading of the UPS system output, PDU's supporting load, and the point of connection between IT devices and the electrical system, respectively.

Proper PUE Use

Contrary to popular belief, Vertal says, the PUE metric is not intended to be used as a comparison between data centers. "The PUE metric developed by The Green Grid is a tool meant for companies to be able to enable continuous improvement of their own data center operations to make improvements within their own internal operations—not to compare themselves against other organizations in their market," he says. Vertal adds that despite many organizations attempting to use PUE results as a marketing initiative or to "brag," an increasing number of companies are applying the metric in ways that follow The Green Grid's published guidelines.

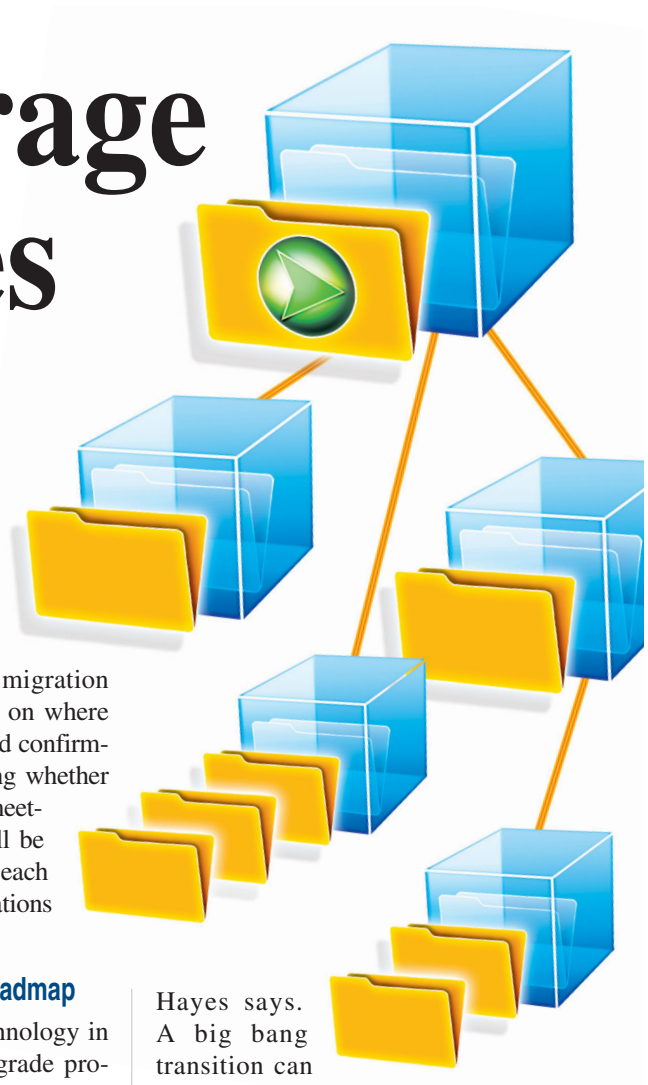
"Without taking the first steps to measurement," Vertal says, "you are unable to measure the affect you have when you implement changes or indeed do planning."

by Kris Glaser Brambila

COVER FOCUS

Successful Storage System Updates

Avoid Glitches By Keeping It Simple



by Carmi Levy

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Few enterprise technologies are more sensitive to the business than storage. Exploding demand for increasingly rich data types is putting significant pressure on storage infrastructure at all levels of the organization. Staying ahead of the curve, however, involves more than simply throwing in a few new drives and switching them on. Upgrade projects should be carefully planned and executed to avoid data availability disruptions.

Although storage upgrades often involve new hardware, moving your existing data onto it may not always be the optimal choice. Minimizing the impact on what's already stored is a crucial component of any upgrade project, says Satish Joshi, executive vice president of Patni Computer Systems (www.patni.com).

"Data migration can be a challenge and a nightmare," Joshi says. "Ideally, one should aim for in-place upgrades where they can upgrade the storage systems for higher capacity and performance without moving the data."

Key Points

- Wherever possible, avoid the need to migrate existing data to a new storage infrastructure. This avoids risk and minimizes project resourcing and timelines.
- Involve all stakeholders early in the project planning stages to confirm testing processes and identify and resolve issues long before they become showstoppers.
- Use migration to upsell new storage capabilities. An upgrade project represents an ideal opportunity to introduce more robust performance into the storage infrastructure.

Talk It Out

Although keeping data where it is may be preferable, it may not always be feasible or even possible. Migration best practices can help reduce the resulting migration-related risk. To avoid migration disasters, Joe Hayes, director of storage for QTS (Quality Technology Services; www.qualitytech.com), says IT should communicate early, often, and thoroughly.

An ideal first step is identifying everyone who will be involved in the process. These could include staff in charge of such resources as OS management, to ensure that updates and changes are supported in the operating environment; storage, to cover all application- and site-specific needs; backup, to ensure that backups are taken before migration and to ensure that they work afterward; applications, to test post-migration application functionality; disaster recovery, to update failover processes; and network, to ensure that the underlying infrastructure remains capable of supporting the new storage environment.

Once the groups have been identified and contacted, Hayes recommends assigning a point person from each one and scheduling a meeting with these key resources.

"This verifies that everyone involved knows what is going on and should hopefully prevent the 'Hey, nobody told me about this!' scenario from happening," he says. The meeting should focus on reviewing the migration plan, soliciting everyone's input on where possible changes can be made, and confirming testing criteria for determining whether the migration is successful. The meeting should also confirm who will be part of the migration groups for each affected area and when the migrations themselves will take place.

Have A Storage Technology Roadmap

Joshi says a range of new technology in the storage space is making upgrade projects easier than ever to plan and execute. He says upgrade projects provide IT an ideal opportunity to review and optimize the technology mix. A range of emerging architectural choices can minimize risk during and following implementation:

Tiered storage. Tiering your storage lets you use different technologies for different needs. For example, SATA drives can provide a low-cost, high-capacity layer, while more expensive Fibre Channel-based storage can address higher performance needs. Flash memory can be used tactically for apps that can differentially benefit from it.

Automated tiering. Joshi says new technologies support automatic storage tiering. This allows preset service levels to be assigned to specific applications, which in turn lets IT dynamically move data across tiers to optimize both performance and cost.

Storage virtualization. Long used for servers, virtualization is increasingly being leveraged for storage, as well. At this level, it supports data consolidation and provisioning as well as dynamic workload movement. Similarly, thin provisioning at the storage layer allows efficient, application-aware storage allocation as data needs grow.

Additionally, methodical planning is critical to a successful storage upgrade, Hayes says. A big bang transition can open the door to spectacular failure and should be avoided at all costs.

"Moving in groups helps to limit the exposure if something goes wrong and will help to keep the process moving more smoothly," Hayes says. "The worst thing that can happen is trying to do too much at one time and an unexpected delay hits and everyone becomes unhappy."

SANs Demand Special Attention

For SAN-based solutions, IT must also ensure that components such as operating systems, applications, and drivers are supported in the target environment. When migrating SAN data, Hayes says, choosing the right replication tool is key.

There are two main categories. Host-based tools specifically support a given OS and storage array. As a result, they must be installed and maintained, and IT might require numerous tools to support each OS. SAN-based tools, on the other hand, are less intrusive than host-based alternatives, as they can be set up to run in the background. They can also support no-downtime migrations, but they can be more expensive.

In all cases when buying a new array, IT should ask the vendor to provide migration tools at no charge. Where applicable, the migration plan should also incorporate external integration components such as replication and SAN optimizers.

Backups Matter, Too

Storage upgrade best practices extend to the backup environment, as well. Patni's Joshi says continued growth in data often outpaces that of traditional backup methods. The net result: Backup windows eventually become too narrow to accommodate the larger pools of data. Newer backup solutions have the speed and capacity to keep pace, but only if they are implemented in lockstep with the storage environment upgrade.

"The new storage systems that you upgrade should provide disk-to-disk backup solutions with deduplication capabilities at the source so data can be easily moved to DR locations," Joshi says. "This will not only bring down tremendous overheads of tape management and DR site shipping, but significantly enhance data restores if and when required." P

Why Upgrade Your Storage In The First Place?

Reasons for storage upgrades extend beyond simply getting rid of older systems. Here are a few of the other benefits:

Backup. Improved replication drives faster, more robust disaster recovery.

Energy efficiency. New drives and arrays can significantly reduce operating costs.

Speed and capacity. Faster, bigger disks reduce the number of units needed, which further reduces data center heat, power, maintenance, and space requirements.

Virtualization support. Modern hardware often natively supports storage virtualization and provisioning, which reduces operational overhead and enhances business agility.

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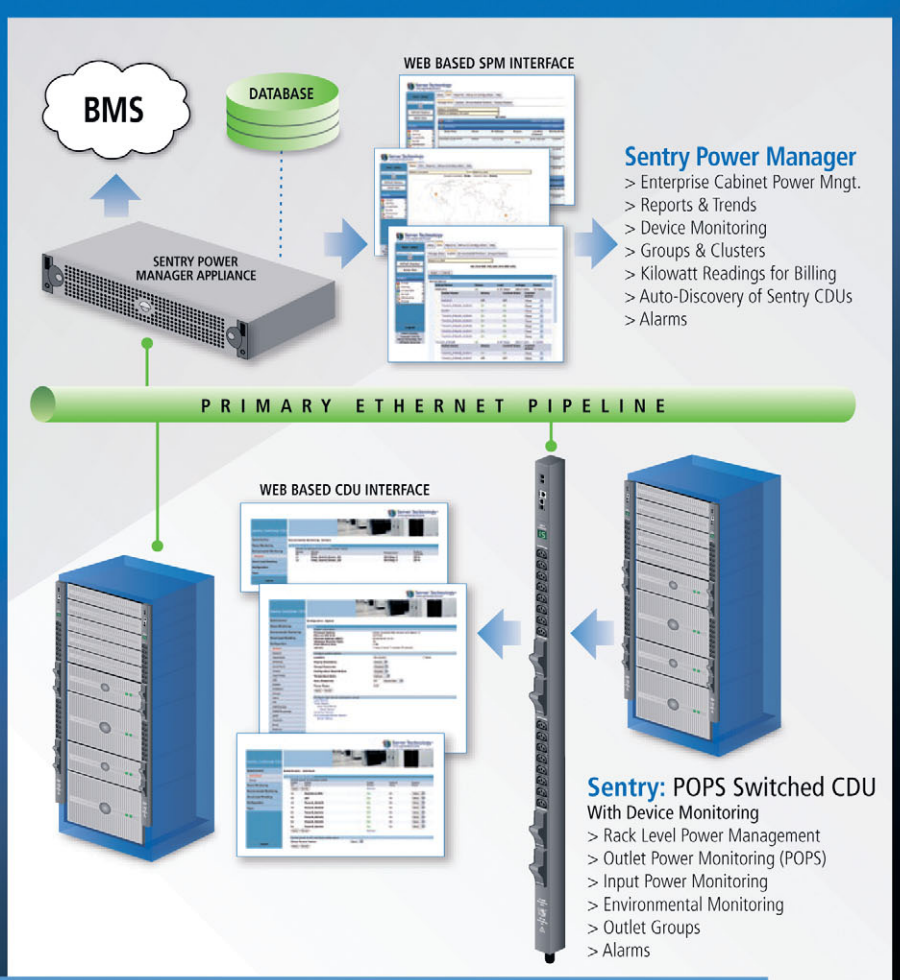

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Meeting Future Storage Needs

There Are Several Technologies To Consider As You Look Ahead

by Dan Heilman

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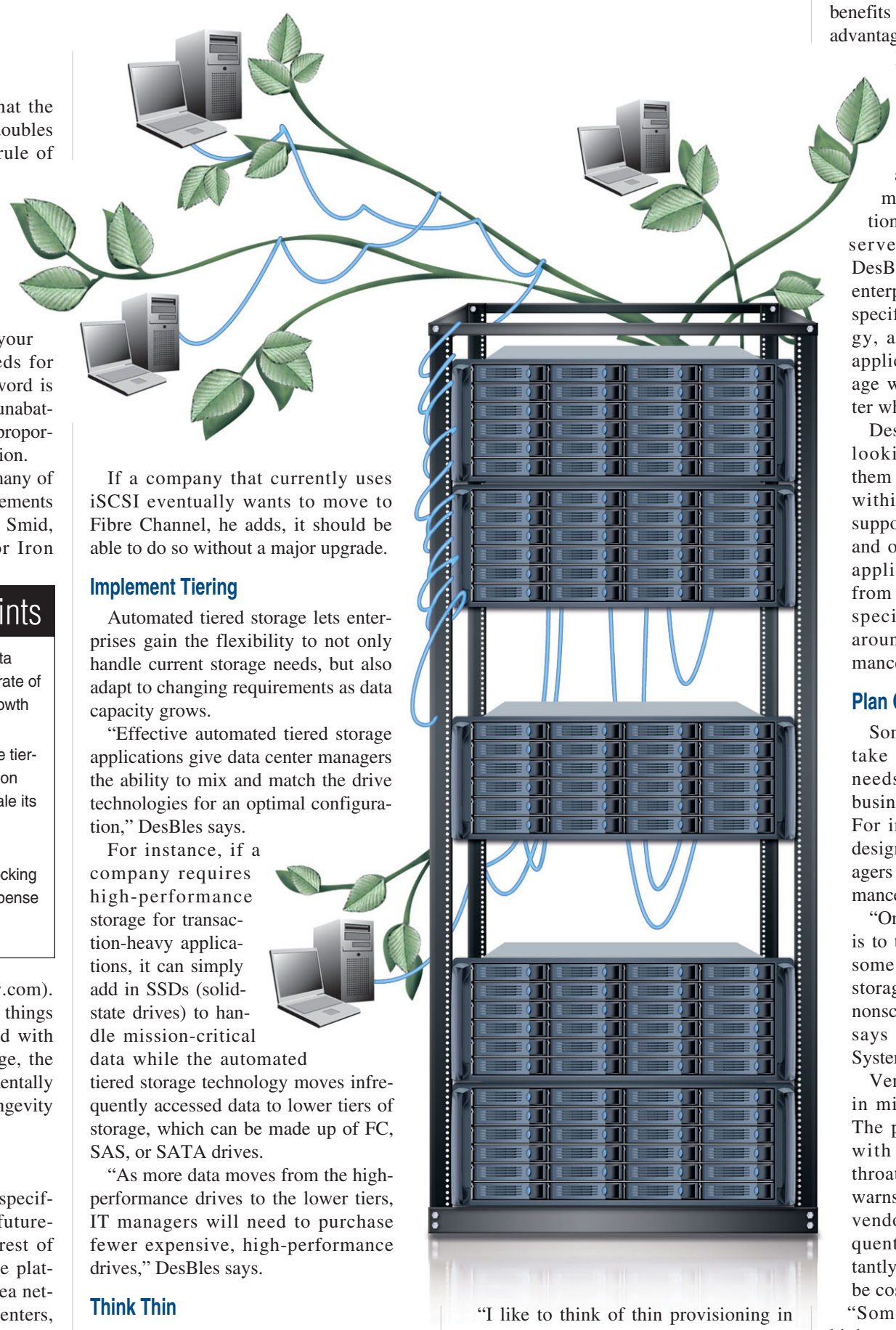
MOORE'S LAW famously states that the capacity of computing hardware doubles about every two years, and that rule of thumb hasn't gone wrong yet. For your data center, though, that can mean a headache about every two years: You need to not only meet your enterprise's current needs, but make sure the storage setup you create lasts well into the future.

How can you best ensure that your storage setup will meet your needs for years to come? In short, the key word is scalability. Data continues to grow unabated, and its rate of growth is often proportional to the growth of the organization.

"Scalability is essential to meet many of the growth and consolidation requirements of today's data centers," says Jim Smid, data center practice manager for Iron Bow Technologies (www.ironbow.com). "Luckily, scalable means different things in today's storage marketplace and with the advent of more modular storage, the ability to scale all resources incrementally is fundamental to prolonging the longevity of the investment."

Key Points

- Make scalability your watchword. Data continues to grow unabated, and its rate of growth is often proportional to the growth of the organization.
- Technologies such as iSCSI, storage tiering, thin provisioning, and virtualization can make it easier for an SME to scale its storage and meet growing needs.
- Avoid one-size-fits-all solutions and instead consider varying vendors. Locking into one can lead to unnecessary expense and fluctuations in quality.



Consider Connectivity Options

Experts say that by using some specific technologies, enterprises can future-proof their storage and give the rest of the data center a fluid and flexible platform on which to grow. Storage-area networks are a given in many data centers, but IT managers should look to have SANs that easily connect to Fibre Channel or iSCSI server interfaces on the front end, says Scott DesBles, director of technical solutions for Compellent Technologies (www.compellent.com).

According to DesBles, iSCSI lets admins use Ethernet-based networks to access and transport storage. And, he adds, less costly storage connectivity options are vital to enterprises that want to add new devices but are short on budget resources and staff. "iSCSI is an ideal interconnect because it utilizes an organization's existing IP infrastructure and does not require specialized skills or training," he says.

If a company that currently uses iSCSI eventually wants to move to Fibre Channel, he adds, it should be able to do so without a major upgrade.

Implement Tiering

Automated tiered storage lets enterprises gain the flexibility to not only handle current storage needs, but also adapt to changing requirements as data capacity grows.

"Effective automated tiered storage applications give data center managers the ability to mix and match the drive technologies for an optimal configuration," DesBles says.

For instance, if a company requires high-performance storage for transaction-heavy applications, it can simply add in SSDs (solid-state drives) to handle mission-critical data while the automated tiered storage technology moves infrequently accessed data to lower tiers of storage, which can be made up of FC, SAS, or SATA drives.

"As more data moves from the high-performance drives to the lower tiers, IT managers will need to purchase fewer expensive, high-performance drives," DesBles says.

Think Thin

Another key initiative to look into is thin provisioning. Previously, enterprises were forced to guess at what their storage needs would be over time and often ended up purchasing too much or too little storage for their future needs. Thin provisioning lets them eliminate preallocated but unused capacity. As utilization reaches 100%, you can simply add in more drives while avoiding downtime.

Storage thin provisioning presents a certain amount of storage space to the operating system or application, but unlike traditional storage systems, the capacity that is not used by the OS or application can be redistributed.

"I like to think of thin provisioning in the same light as the overbooking concept in an airline," says Marc Howard, solutions architect at All Covered (www.allcovered.com). "Traditionally, [a company] purchases disks by estimating its capacity over the next several years. Usually the total capacity is overestimated so that there is plenty of space available, even if never used. It's that never-used space that often ends up as waste by the time those hard drives are fully depreciated."

Go Virtual

Quickly growing in popularity among enterprises that are trying to win the guessing game of storage needs is storage virtualization. Server virtualization provides a lot of performance and efficiency benefits to the data center, but to truly take advantage of all that the virtual data center has to offer, experts say enterprises should pair it with a storage virtualization technology.

"To ensure flexibility for future needs, the storage virtualization software implemented must support any server virtualization application without the need for server-side agents," Compellent's DesBles says. "Through this strategy, enterprises won't be locked in to any specific server virtualization technology, and they can move to different applications knowing that their storage will integrate seamlessly no matter what."

DesBles says enterprises should be looking for a solution that allows them to create any size virtual volume within a short time period that can support most virtual server platforms and optimize the placement of virtual applications. That should keep you from having to allocate a drive to a specific server or deal with issues around capacity planning or performance tuning.

Plan Carefully

Some prudent steps enterprises can take to be ready for future storage needs involve technology less than business acumen and common sense. For instance, before jumping in and designing a storage solution, IT managers should assess access rates, performance, and data protection needs.

"One of the common mistakes made is to treat all data the same and create some sort of holistic one-size-fits-all storage solution that gets them into a nonscalable, vendor lock-in situation," says Rob Sims, CEO of Crossroads Systems (www.crossroads.com).

Vendor balance is important to keep in mind when shopping for storage. The path of least resistance is going with a single vendor, or the "one throat to choke" approach. But Sims warns that this approach can lead to a vendor lock-in situation, and subsequent purchases—and, more importantly, support and maintenance—can be costly.

"Some of the smaller vendors offer high-quality solutions that many of the main providers actually OEM from the small vendor," he says. "You can get better pricing—and in many cases, better service—from the original vendor." P

Storage Cycle Scheduling

How often is often enough for a storage upgrade? Overall, consider an upgrade every three to five years, but let economic factors be a guide: Is new equipment a cheaper alternative to maintenance? Does the ROI justify a new investment?

"When the service life ends for a storage system, you have to replace it," says Edward Lewis, senior technical architect at Systems Alliance (www.systemsalliance.com). "Doing your homework can extend the life cycle of your equipment, saving money, time, and frustration."

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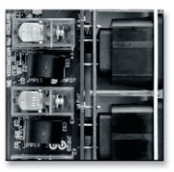

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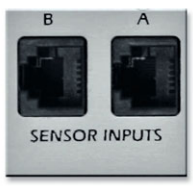

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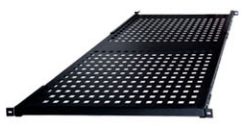

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PDUs Direct To You

Top Quality At The Lowest Price Available

by Blaine Flamig

• • •

Premium power distribution without the premium price. Such a notion may sound too good to be true in today's sagging economy, but such an approach is precisely the customer-oriented mission PDUs Direct (www.pdusdirect.com) was built on and continues to operate by.

As the online wholesaler of basic, metered, and switched PDUs from longtime PDU maker Server Technology's product line, PDUs Direct is dedicated to providing its customers the highest quality in-rack power strips, power distribution, and rack PDUs offered at best-in-class prices.

Established in November 2008 at the outset of the economic downturn, PDUs Direct understands the financial, cost-cutting challenges now facing SMEs. That's why PDUs Direct is committed to supplying its customers with industry-standard, industrial-grade PDUs suitable for network and server environments at prices falling 10 to 20% below competitors' online prices. PDUs Direct's customer commitment extends to the company's easy-to-use, uncluttered Web site, which makes locating the right PDU a quick, streamlined process without skimping on the pertinent product information customers require.

PDUs Direct's dedication to its customers is seen through its next-business day shipping policy; 100% satisfaction, 30-day money-back product guarantee; and ultra-convenient email and live chat technical support options. Whether the question or concern is in regard to a product, order, or application, PDUs Direct's chat support pairs customers with live operators who possess years of real-world PDU experience and knowledge. Customers can even request a chat transcript for reference following a chat session.

PDUs Direct power distribution units are constructed in steel-case enclosures, available in a variety of outlet and power-level configurations, and ship with a customer-selected power cord. Each switched PDU sold also includes the latest firmware from Server Technology and fully networked outlet management and power and environmental monitoring abilities. P

PDUs direct

PHYSICAL INFRASTRUCTURE | PRODUCT SPOTLIGHT

Data Center Flooring & Accessories

ASM Modular Systems Raised Access Flooring System

Description

Raised access flooring systems from ASM allow for easy reconfiguration via instant access to wiring and cabling. ASM's raised access floors include technology to address advances in electronic workflow and energy efficiency.

- Incorporates a solid brass positive grounding device in every panel
- Uses nickel chrome plating on critical parts for safety
- Uses a solid tube design that's better than conventional U-shape for high-strength stringers
- Green building elements
- High-pressure laminates available
- Vinyl plastic that's resistant to strong chemicals

Best For: IT administrators who require electrical grounding and want no zinc whiskers and high-strength stringers.

Bergvik Flooring Modular Raised Floor

Description

In the flooring business since 1970, Bergvik offers the strongest, most stable and modular raised floor available for data centers. Bergvik's engineering department supplies CAD drawings that are suited to your needs.

- The Iso Floor system offers custom panels as an option to fit your equipment depths and allows for optimization to build smaller and smarter rooms; floor heights from 12 to 94 inches
- River Cooling Airflow Panels with high-plume fins provide superior air stratification to cool upper servers when compared to flat bottom panels; the unique 36- x 24-foot panel also allows for more server racks
- Earthquake bracing frames will fit any raised floor and are tested to NEBS standards

Best For: Enterprises that are looking to lower energy costs by up to 40% and add more server racks in the same footprint, increasing their revenue stream.

Commercial Flooring Systems

Description

A full-service flooring contractor, Commercial Flooring Systems works with hundreds of popular brands of flooring from leading manufacturers. Products include carpet, resilient flooring materials, ceramic tile, and other specialty flooring products.

- Design consultation
- International material sourcing
- International service coverage
- All installation performed to the manufacturer's specifications
- Quality, on-time delivery
- Floor covering maintenance

Best For: IT staff working with an enterprise that needs to update all of its flooring options.

Pro Access Floors Raised Access Flooring

Description

Pro Access Floors has been providing a comprehensive line of raised access floor products and services since 1975. Pro Access Floors has installed hundreds of computer floors nationwide. Both new and preowned raised flooring is available. Pro Access Floors can help with floor disposal; installation and expansion; consulting; and maintenance, repair, and cleaning.

- New and refurbished flooring
- Various types available, including steel concrete, wood core, and aluminum
- Can help locate replacement panels, regardless of the age or manufacturer

Best For: Companies looking for a data center flooring provider that can assist them in all stages of the raised computer flooring process.

Sealco KoldLok

Description

Did you know that 50 to 80% of valuable conditioned air is not reaching the air intake of IT equipment due to unsealed openings? Sealing cable openings with KoldLok products provides a cost-effective airflow and thermal management solution. KoldLok raised floor grommets will help you increase existing cooling capacity, reduce the need to purchase additional cooling units, and improve equipment reliability and extend equipment life. Sealco also makes other airflow flooring accessories, including PlenaFill blanking panels and the PlenaForm airflow baffle system.

- Increases existing cooling unit capacity
- Reduces the need to purchase additional cooling units
- Prolongs equipment life
- Can be modified to seal unique cable openings
- Increases static pressure under the raised floor
- Improves air delivery through perforated tiles and grates
- Facilitates hot and cold aisle best practices

Best For: Sealing cables, eliminating bypass airflow, and saving energy.

Contact: (972) 234-5567 (call for special offers) | www.sealco.net

Sealco Tacky Mats

Description

Sealco provides a variety of tacky mats to keep your computer or clean room free of contaminants. Each mat is composed of multiple-layer polyethylene film with a specially treated pressure-sensitive adhesive on one side, which catches the contaminants from shoes or equipment. When sheets gather contaminants, the top sheet can be peeled off to expose a new sheet. The sheets are designed to resist adhesive transfer, preventing sheet-to-sheet de-lamination. Ask about our free removable mat holders that allow easy placement and removal.

- Variety of sizes and colors
- Keeps contaminants away from computer equipment
- Optional company logo imprint
- Mat sheets individually removable and numbered
- Non-beveled edges ensure each sheet is contaminant-free

Best For: Entry ways into computer rooms or any area where dust/dirt can track into the computer room.

Contact: (972) 234-5567 | www.sealco.net

Processor's Product Spotlight highlights options available in key data center product categories, providing product information side-by-side for easy comparison.

Compiled by Nathan Lake

Julie Industries StaticSmart Flooring

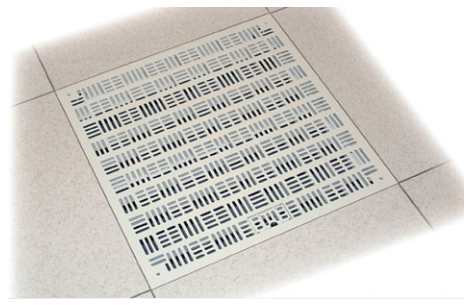
Static Smart™
STATIC CONTROL FLOORING

For more than 30 years, Julie Industries has been providing static control flooring solutions to companies and government facilities throughout the world. The StaticSmart line of floor finishes includes ESD carpet tile and positile, ESD vinyl, and ESD rubber tile. All StaticSmart flooring is appropriate for data centers and access floors. StaticSmart offers a lifetime warranty on static protection properties.

- Easy to install
- Wide selection of styles and colors
- Low maintenance requirements
- Permanent static protection without specialized footwear
- Lifetime static protection warranty

Best For: Data centers and networked environments needing fail-safe static control flooring for either access floor or non-access floor applications.

Mainline Computer Products Infinity Air Grate



Mainline Computer Products' Infinity Air Grate is a heavy-duty 24- x 24-inch perforated steel floor panel that can adapt to virtually every access floor system. With a massive 55% open area, the Infinity Air Grate delivers more than twice the cold airflow of other perforated panels, and it delivers the strength to support a static load of 1,500 pounds. In addition, Mainline offers complete access floor systems, replacement panels, perforated access floor panels, antistatic carpet tile, and floor panel lifting tools.

- Made of rugged, heavy-gauge steel
- Self-retracting easy lift handle
- Static load of 1,500 pounds
- Quad Damper Kit, leveling legs, and Z-plates sold separately

Best For: Computer rooms, data centers, control rooms, wiring closets, and anywhere continuous airflow is required.

Contact: (800) 686-5312 | www.mainlinecomputer.com

PDU Cables Air Guard Cable Seal

PDU Cables is the exclusive supplier of the Air Guard Cable Seal line of products that seal access holes for routing cables through a data center's floor. The Air Guard Cable Seal product line provides data centers immediate energy savings because of the product's ability to significantly minimize cool air loss while improving static pressure to keep data center equipment from overheating.

- Dual seal around cables provides effective, economical means to eliminate bypass air though cable cutouts
- Reduces air loss in plenum-cooled floors
- Improves under-floor static pressure
- Extends life of cooling equipment
- Flexible and simple cable routing via removal of floor tiles without disconnecting equipment

Best For: Sealing any size of cable opening in a raised data center floor environment.

Staticworx Electrically Conductive ESD Rubber

staticworx®
grounded solutions

Staticworx produces antistatic floors that are ideal for data centers and mission-critical operations. All Staticworx flooring comes with a lifetime static-control warranty, and Staticworx EC ESD Rubber is unaffected by footwear choice, traffic, or environment.

- Awarded Seal of Approval by ESD Journal as only fault-tolerant flooring
- No wax or polish necessary—damp mop only
- Installed easily over raised access or concrete floors
- Can cover entire floor or be purchased as floor mats

Best For: Data centers that want to ensure flooring prevents static regardless of footwear worn in the workplace.

Tate Access Floors

Tate Access Floors provide your servers the ability to meet high-performance needs, offer flexible and accessible service distribution for quick reconfiguration, improve energy efficiency through the reduction of mechanical equipment, and boost indoor air quality. The perforated air flow panels utilize natural convection and maximize energy efficiency.

- Sustainable design
- Energy savings
- Bolted stringer understructure
- Easy access to underfloor area
- Cutout seals to minimize air leakage

Best For: Enterprises that want an efficient, high-performance raised floor data center.

Upsite Technologies KoldLok Mini Raised-Floor Grommets

KoldLok Mini Raised-Floor Grommets seal small openings in new data centers, existing computer rooms, and raised floors to optimize existing cooling equipment and manage heat loads. Measuring 4 x 6 inches, the patent-pending thermal management grommets give installers a handy way to split power and data cabling to minimize interference and also move floor tiles without capturing cables. The grommets improve existing cooling unit capacity, reduce equipment hot spots, lower infrastructure costs, and facilitate increasing server density. Each grommet has 13,200 opposing, angled, and intermeshed nylon filaments that block up to 98% of bypass airflow.

- Filaments and frame meet UL94 V0 standards
- Sits flush with raised-floor or other panel surfaces
- Available with and without static dissipation
- Static dissipation feature integrates with raised-floor static dissipation system to provide 1 gigaohm of resistance

Best For: Sealing small cable openings in new or existing data centers and for cost-effectively splitting power and data cabling.

Contact: (888) 982-7800 | www.upsite.com

PHYSICAL INFRASTRUCTURE | PRODUCT SPOTLIGHT

KVM Switches

Product	ATEN KN4140v 5-User CAT5 IP KVM	ATEN KH2516 16-Port 2-User CAT5 KVM	Belkin F1DN102D OmniView Secure DVI KVM Switch
Description	The KN4140v offers built-in remote access functionality from up to one location and four remote operations to help you monitor data center servers over the Internet. The switch also supports audio. • Remotely monitor and control all installed devices through a secure Web portal • Supports virtual media with file transfer functionality • Audio transfer via TCP/IP and dual onboard network interface cards • Out-of-band access with external modem support for BIOS-level troubleshooting **Best For:** Workers who need access to large media repositories that are housed in servers in another room or at a different location. **Price:** $7,199.95	ATEN's KH2516 features 16 computer port configurations for complete KVM connectivity from a CAT 5e/6 cable. The KH2516 is housed in a 1U form factor for convenient rack mounting. • Capable of expansion to provide control of up to 4,096 computers • Dual bus consoles for two simultaneous and independent operators • CAT 5 links up to 130 feet between KVM and servers • Allows for port-by-port setup of user account access rights **Best For:** IT administrators who need to control a large group of computers from a single KVM. **Price:** $799.95	Designed for military, intelligence, and federal agency installations, this two-port OmniView Secure DVI KVM Switch is NIAP-certified to ensure data integrity when switching between computers operating at different security levels. • Supports Common Criteria EAL 4+ and augmented with ALC_FLR.3 • Dual-link DVI-D delivers video resolution up to 2,560 x 1,600 • No memory buffer • Nonreprogrammable firmware **Best For:** Those who must conform to the latest security protocols when switching between two computers. **Price:** $499

Product	Iogear GCS1792 2-Port HDMI KVM Switch	Iogear GCL1816KITP	Minicom PS/2 To USB Converter
Description	If you require HD resolution and surround-sound audio, the Iogear GCS1792 is for you. It's a two-port switch that supports HDMI 1.3b, HDCP, Dolby True HD, and DTS HD Master Audio. • Display Emulation Technology to maintain video resolution when switching between PCs • Two USB 2.0 ports to share peripherals, such as an external hard drive • Supports a variety of HD resolutions • Asynchronous switching lets you independently switch applications between connected PCs **Best For:** Graphic designers and high-end video editors that need to switch among multiple PCs for working with special effects and rendering. **Price:** $299.95	This 17-inch TFT LCD monitor provides a 16-port KVM switch and the necessary PS/2 KVM cables. The retractable monitor features a built-in keyboard and touchpad, but you can also add an external USB mouse. • Includes eight 6-foot PS/2 cables and eight 10-foot PS/2 cables • Fits into a 1U, 19-inch rackmount space • Supports Windows, Mac, Sun Solaris, and Linux • Two levels of password protection **Best For:** Those who need to increase space and productivity within the data center. **Price:** $1,879.95	Extend the life of your existing equipment with the Minicom PS/2 to USB Converter. The converter lets you use your PS/2 devices (KVM switches, KVM extenders, and servers) with a USB keyboard and mouse. Unlike other converters, the Minicom PS/2 to USB Converter allows for many keyboard and mice combinations. • Compatible with PS/2 servers, KVM switches, and KVM extenders • Extends the life of legacy PS/2 equipment • Pure hardware solution; no software/network conflicts • No need for external power • Compact size • Plug-and-play • Three-year warranty **Best For:** Enterprises looking to extend the life of their existing equipment. **Contact:** (888) 486-2154 | www.minicom.com

Processor's Product Spotlight highlights options available in key data center product categories, providing product information side-by-side for easy comparison.

Compiled by Nathan Lake

Black Box KV1701A ServSwitch Octet

The ServSwitch Octet includes Octoware software that lets you monitor complete system setup via IP access, scan connected devices, edit user profiles, and flash upgrade system components. If the network link fails, the ServSwitch Octet retains protection through its own proprietary security settings.

- Supports connections up to 984.2 feet over solid CAT 5, CAT 5e, or CAT 6 cabling
- Maximum resolution of 1,600 x 1,200 at 100 feet and up to 1,280 x 1,024 at 984.2 feet using the Enhanced Video User Station
- Security restricts access to authorized users
- Capable of supporting eight users and the ability to control 32 servers

Best For: Test and demo labs as well as design and broadcast environments.

Price: $6,119.95

Black Box KV2404A ServSwitch Wizard Dual-Link DVI Quad Head With USB True Emulation

With the Quad Head, you can control four computers and share USB peripherals among each PC. Each of the video heads supports dual-link DVI video at up to 450 megapixels per second, and you can switch DVI video, keyboard, and mouse streams to multiple PCs.

- Can switch attached peripherals to a computer system or link them to separate systems
- Supports resolution of 2,560 x 1,600
- Two independent USB 2.0 channels to switch out peripherals
- USB True Emulation provides real profiles of device for advanced mouse and keyboard functionality

Best For: IT administrators, graphic designers, and broadcast studio professionals who require quick, reliable access to multiple CPUs and video channels.

Price: $1,559.95

Black Box KVT517A-1UV ServView V KVM Tray

This dual-rail console features a 17-inch LCD panel that supports resolutions up to 1,280 x 1,024. It offers a keyboard and touchpad, and the KVM switch module connects to VGA and either PS/2 or USB servers.

- Can cascade the console with other KVM switch modules
- Slim drawer pulls out, folds up and down, and securely latches to save space
- Console automatically shuts down when LCD is at a 45-degree angle
- Sun native resolutions supported for multiplatform functionality

Best For: Enterprises that require a compact console to manage servers.

Price: Starts at $1,649.95

Minicom Power On Cable

PoC (Power on Cable) is an SPPC (single-port power control) device that enables remote power control (power on/off/reboot) of any connected device. PoC is targeted at any IT environment that needs 24/7 remote power management, including mission-critical computers, servers, or network and monitoring devices.

- Control integrated with Minicom KVM/IP sessions
- Modular design for expandability
- 90 to 260 VAC; 44 to 66Hz international coverage
- Current consumption up to 10A per port
- Flexible power redundancy
- Unique design and 0U footprint
- Easy third-party integration with open standard protocol
- No physical connection between management and power device
- Three-year warranty

Best For: Any IT environment that needs 24/7 remote power management.

Contact: (888) 486-2154 | www.minicom.com

TRENDnet TK-804R 8-Port USB KVM Switch

This rackmount 8-port KVM switch supports USB and PS/2 interfaces on the console side and USB on the PC side. Users can switch between PCs using hotkeys, push buttons, or the on-screen display for flexible management.

- 8-port stackable KVM switch with VGA and USB connection to computers
- Device monitoring with adjustable Auto-Scan, audible feedback, and the ability to cascade up to 64 computers
- Supports most operating systems and advanced mouse designs

Best For: IT staff looking for an affordable KVM switch with an on-screen display to make it easy to manage multiple PCs.

Price: $329.99

TRENDnet TK-IP101 1-Port KVM Switch Over IP

TRENDnet's 1-Port KVM Switch Over IP eliminates the need to physically be in the server room to troubleshoot, reboot, or edit preboot functions.

- Manage multiple servers from your network or remotely from any Internet connection
- IP-based remote control server management for Windows- and Java-based clients
- An intuitive Web interface provides controls from BIOS-level functions to Windows-based applications
- With up to 16 active user accounts, the TK-IP101 supports four concurrent logins

Best For: Data centers looking for cost-effective remote server management for multiple users.

Price: $577.99

WLAN Radio Frequency Technologies

The RF Tricks Designed To Help Tame Unpredictable Airwaves

by Kurt Marko

• • •

Nowhere has WLAN innovation been greater, more furious, and arguably more significant than in RF (radio frequency) technology, and for good reason. "The difference between wireless and wired is the physical layer," says G.T. Hill, technical marketing director at Ruckus (www.ruckuswireless.com). As most electrical engineers have learned the hard way that "the world is analog," so fixing the ethereal physical layer entails leaving behind the world of bits and packets and focusing on signal propagation, interference, and spectrum utilization.

Major WLAN RF Technology Innovations

As any Wi-Fi user can attest, performance is highly dependent on proximity to the AP (access point) and any physical obstructions. Throughput can vary by five- or 10-to-one depending on location, suggesting that the most effective way to improve wireless performance is by increasing the useable signal strength while reducing sources of background interference, such as the SNR (signal-to-noise ratio), and the best way to improve this is through better antennas.

Although simple external omnidirectional antennas can boost weak signals, they don't do anything to reduce noise, so vendors are turning to innovative multi-element antenna designs and creative methods of using the multipath signals inherent to an 802.11n MIMO array. Collectively, this set of techniques is termed beamforming, what Paul DeBeasi, Burton Group wireless senior analyst, describes as merely a means of focusing and augmenting the AP's RF energy at particular client locations. There are three types of beamforming: transmit, static, and dynamic (aka 'beam steering').

TxBF. TxBF (transmit beamforming) propagates two or more phase-shifted copies of a signal on a frame-by-frame basis such that they reinforce one another in-phase at specific locations where the transmitter believes the receiver to be. Two forms of TxBF, implicit and explicit, differ in how the phase shift angle between the AP and client is determined, but both are optional components of an amendment to the 802.11n standard.

A variant of TxBF is Cisco's proprietary ClientLink, which also uses multiple signal paths to reinforce the signal. Although ClientLink only works for downlinks (transmitter-to-receiver), this means it's compatible with legacy, non-MIMO, 11b/g/a clients since it doesn't require any client feedback.

Static beamforming. This technology uses an array of directional antennas to form a spherical RF pattern from a single AP, which uses beam antennas to focus the signal while avoiding interference sources, thus improving SNR. Devin Akin, chief Wi-Fi architect at Aerohive (www.aerohive.com), says that because each radio covers a smaller physical area, APs can use multiple radios, improving capacity, albeit at the cost of physical bulk. DeBeasi notes this design can worsen co-channel interference as the beams aren't entirely nonoverlapping and are susceptible to multipath reflections.

Dynamic beamforming. Dynamic beamforming also uses an array of directional antennas to focus RF energy; however, it adds onboard processing to enable the AP to intelligently select and dynamically change the antenna beam pattern from frame to frame in response to individual client conditions. Unlike TxBF, dynamic beamforming improves SNR for both 802.11n and legacy clients and can work in conjunction with spatial multiplexing to further improve performance and noise rejection.

Embedded real-time spectrum analyzers. A recent addition to the WLAN RF arsenal is embedded real-time spectrum analyzers. These scan wireless channels looking for interfering, often spurious, signals. Information about noise frequencies and location is used to adjust AP channel assignments and output power, data rate, and beam shape. Spectrum analysis allows APs to identify and mitigate sources of performance problems, not merely work around them, and adapt to previously undetectable noise sources, according to Joe Epstein, senior director of technology at Meru Networks (www.merunetworks.com).

Using Airwaves To Improve Capacity & Performance

"There is such a wide variety of capabilities and transmit speeds among clients," Epstein says, which means that WLANs need a way of "preventing one client's behavior from affecting the throughput of other clients," particularly in mixed environments of 802.11n and legacy clients. One solution is ATF (Airtime Fairness), which allocates the time slices each client receives from an AP to ensure that slower legacy protocols don't monopolize airtime at the expense of faster 802.11n clients. "ATF doesn't allocate spectrum but rather allocates time using that spectrum," says Akins. Because Wi-Fi is a shared medium, DeBeasi says legacy clients can reduce throughput on heavily loaded APs and disrupt latency-sensitive applications such as VoIP.

Band steering is another way of fostering peaceful coexistence between legacy and 802.11n clients. Wi-Fi devices must share the crowded, unlicensed 2.4GHz band with many other devices. Because 802.11n also runs on the 5GHz band, it's best to segregate dual-band clients whenever possible. Band steering provides a means of forcing misconfigured 5GHz-capable devices to the higher band, thus providing a form of "spectrum load balancing."

Spatial multiplexing enables different antennas to transmit multiple data streams over the same frequency, but on different physical paths. As DeBeasi points out, this trick puts the problem of multipath interference to good use by increasing channel capacity without consuming extra spectra, providing the wireless equivalent to Ethernet channel bonding. Note that spatial multiplexing cannot be used in conjunction with TxBF.

Recommendations & Conclusions

RF innovations are largely independent of the underlying channel allocation architecture, whether SCA (single-channel) or MCA (microchannel), although, implementation details vary widely and unique characteristics of each architecture render some features more important than others. Furthermore, with the exception of TxBF, these RF features aren't part of the 802.11 standard, so vendor interoperability is questionable.

Before completely cutting the cord, enterprise users must be confident that Wi-Fi can provide adequate range, reliability and performance, says David Callisch, VP of marketing at Ruckus Wireless. "You need to deliver a reliable connection to a device and have consistent performance everywhere a user might be." The recent plethora of RF innovation addresses major wireless shortcomings to a degree that it's now a legitimate alternative to wired office LANs. P

Key Points

- The 802.11n WLAN standard includes features enabling new radio frequency technologies to improve performance, reliability, range, and predictability.
- New antenna designs and signal processing using phase shifted signals from MIMO arrays allow APs to concentrate or focus the RF energy at particular locations.
- Embedded spectrum analyzers let APs identify and classify wireless interference and compensate accordingly, while spatial multiplexing increases capacity and throughput by transmitting multiple data streams on the same wireless channel.

> "There is such a wide variety of capabilities and transmit speeds among clients," which means that WLANs need a way of "preventing one client's behavior from affecting the throughput of other clients."
>
> *- Meru Networks' Joe Epstein*

Comparing Beamforming Technologies

Question	Static Beamforming	TxBF		Dynamic Beamforming
		Implicit and explicit TxBF	Cisco ClientLink	
Vendor support for this beamforming type?	All vendors – single antenna Xirrus – array of antenna	None	Cisco	Ruckus Wireless
SNR gain in downlink and uplink direction?	Up/down	Up/down	Down only	Up/down
Provides SNR gain for 802.11b/g/a clients?	Yes	Yes	Yes	Yes
Provides SNR gain for 802.11n clients?	Yes	Yes	No	Yes
Can simultaneously use spatial multiplexing?	Yes	No	No	Yes

Beamforming is a method of concentrating RF energy in order to improve the SNR (signal/noise ratio) at the receiving client. Most enterprise WLAN vendors now integrate beamforming technology into their APs. There are three primary types of beamforming: static, transmit, and dynamic, with TxBF (transmit beamforming) further segmented into three different implementations: standards-based implicit and explicit and Cisco's proprietary ClientLink.

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PHYSICAL INFRASTRUCTURE

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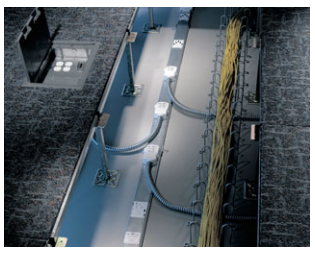

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Power Distribution
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News

Enterprises Failing To Take Advantage Of Social Media

A recent report from the Yankee Group says that consumers want to be able to interact with companies through social networking sites, but businesses aren't doing enough to respond. At a time when widespread social media adoption is changing consumer behavior, the report says, a large number of businesses have no coherent strategy for taking advantage of social networking, and those that do are showing mixed results.

"Social networking is moving faster than business moves, and a lot of companies are trying to figure out what to do," says Zeus Kerravala, a senior vice president of enterprise research at Yankee Group and one of the report's authors. "It's hard to measure and find any good best practices."

According to the report, which was conducted for Siemens Enterprise Communications, about 30% of businesses use some form of social media, but a third "have no formal processes in place, do not allow the use of social media at work, or have no idea if their company participates in social media." Yankee Group also asked participants about their overall satisfaction with big brands' social networking presence. Average satisfaction was only 65%.

Tapping Into Social Media

Among the report's key findings is that respondents want businesses to engage with customers via their social media presence. Eighty percent of respondents think businesses should check social media sites to see what people are saying about them. About 70% want to post questions to a company, chat with technical support, write product reviews, and share information with friends. And 58% said they feel more loyal to a business when they can communicate regularly with the business through social media.

"The study illustrates the importance of integrating social media interactions along with traditional communications channels (voice and email)," the report says.

Businesses also need to understand that 73% of employees are already using these tools at work, either to help sell or market their products, according to the report. More than 80% want to filter information in social media posts to find information that pertains to their area of interest, 79% want to use it to automate updates of contact information, and 77% want to use social media sites for customer feedback. About 70% need more tools to manage and track their use of social media sites for business purposes.

"Social media not only changes how customers participate in the conversation, but also how businesses must respond," the report concludes. "Customers are now in the driver's seat, with Web information and social media tools such as Twitter, YouTube, and Facebook creating volumes of information."

by Kyle Harpster

NETWORKING & VPN

SIX QUICK TIPS

Simplifying VPN Connections For End Users

Maintaining Security While Making Things Easier

by Bruce Gain

• • •

VIRTUAL PRIVATE NETWORK connections continue to serve as a reasonably safe way to lock down connections when security has to be maintained for remote connections. But although the encryption and authentication that VPN connections offer are often very important, VPNs, unfortunately, have not always been so easy to set up and use for the average user.

Although VPNs are easier to use than they have been, there is still room for improvement, says Brad Kowal, assistant data center director for Shands HealthCare in Florida. "Even after clientless VPNs came along a few years ago, there are still problems with them today [for the end user]," he says. Here are some steps you can take and features to look for in software offerings that can help simplify users' VPN experiences.

Clamp Down On Policy

IT admins know all too well that VPNs do not solve security risks. All it takes is for a user to establish a VPN connection from a remote location with an infected machine that can serve as a gateway for botnets, viruses, and other malware to enter the network. Security policy must be strictly enforced to prohibit infected machines or devices from accessing the VPN. But to simplify connections for the user, he or she should never have to worry about complying with the VPN security configurations or policies. "The burden has to be on IT fully—users are not sophisticated enough to understand," says Dave Larson, senior director of advanced technology for HP Networking (www.hp.com). "Typically, remote users are sales people, and they have deadlines and their focus is on dollars and revenue."

Make Them Device Friendly

Look at it from the mobile user's perspective: Today's road warriors are increasingly relying on their BlackBerrys, iPhones, and other smartphones to access VPN connections. So when it is time to connect to the head office's LAN for data or application access for which a VPN tunnel is required, why should they have to interrupt what they are doing by having to access another device to log on?

The solution is to make sure that the proper VPN management software is in place to enable users to log on to VPNs regardless of the device they use, says Subbu Iyer, a senior product manager for Juniper Networks (www.juniper.net). "The idea is for there to be simpler connectivity for more users, from pretty much any devices they use from any location. Whether they are on their home PC, smartphone, or whatever, you need to provide simpler connectivity to them," Iyer says. "Users should not have to see any difference in application access or in time to connect. It should be transparent to the end user."

Provide VPN Kiosks For Occasional PC Users

Not everybody has a PC on his or her desk, and many users seldom need to establish a VPN connection or even have access to a computer at many enterprises. But when they do, self-service portals to access password management and other VPN features do little good if the user does not know how to use the software.

For these users, the solution is to make a kiosk PC readily available for the few times during the year when they do need to access a VPN, Kowal says. "We are talking about the infrequent computer user who can walk up to the kiosk that presents clearly to them things like 'click here to change your password,' or 'click here to log in to the portal,'" Kowal says. "If that doesn't work, then the kiosk has to instruct the user to pick up the phone next to the kiosk and to become instantly connected to the help desk. You need to provide easy VPN access for that other group of people who are non-daily computer users who also play a vital role in your organization's operations."

Create Plug-&-Play VPNs For Remote Offices

Maintaining VPN connections to and from remote offices can pose a logistic challenge for IT managers, while the end user at the remote office or site must contend with working with the IT help desk to configure the settings. The problem is compounded by establishing lease-line services between the remote sites and between the remote sites and headquarters, Larson says.

The solution is to use the public Internet at the remote site with auto-provisioning services for the remote gateways. IT should also provide users with preconfigured networking devices that can directly access the VPN portals over the Internet, Larson says. "Otherwise, you ship a unit to your remote office, get somebody in the remote office on the phone, and talk them through the initial configuration, which involves the establishment of keys that you need to transmit in a secure way," Larson says. "Ideally, you should just be able to buy a VPN device, ship it literally from the vendor to the branch office, have the branch office receive the device, plug it into the network, connect to it with a browser, and then go through a very simple enabling wizard that just tells it where it needs to phone home and that's it." P

Best Tip:

Keep Your Eye Out For Better Features

While modern VPNs today often only require the user to log on to a Web site and have access to the data and applications they need directly, things are not always perfect. New firmware updates, for example, can initiate new Java-app pushes that impact the end user so that connections are not established and IT support is required, says Brad Kowal, assistant data center director for Shands HealthCare in Florida. The remedy is to not become complacent about software shortfalls and to take advantage of the improvements that vendors keep adding to their products. "Look for features [that correct issues], and maybe it will be addressed and there will be a lesser [negative] impact on the end user," Kowal says.

Time-Saving Tip:

Offer Self-Service VPNs

Retrieving forgotten passwords has long been a major nuisance when end users are traveling or are even onsite and need access to a VPN connection. The remedy is to offer access to a Web-based interface or portal to enable users to reset passwords or to fix other issues they might have with establishing a VPN connection themselves wherever they happen to be.

"If someone inadvertently allows their credentials to time out, they need physical access to the network in order to re-enable those credentials or change a password or to allow themselves to access the VPN network. And that may be impossible if that happens to somebody who may be remote on a business trip in a far environment without a fair amount of hoops they have to jump through for direct IT support," says Dave Larson, senior director of advanced technology for HP Networking (www.hp.com). "The way to make that problem go away is to allow folks to have access to some sort of a portal that allows you a secure way to access credentialed information, if not the rest of the network, and to modify your account."

BONUS TIPS

■ **Use standards-based VPNs.** By using standard protocols, it makes it much easier for your end users to go through OS patches and updates, says Dave Larson, senior director of advanced technology for HP Networking (www.hp.com). "By relying on standard-based systems, you are going to go through upgrades, OS fixes, and everything else much more seamlessly than you would with proprietary systems," Larson says. "You don't want an OS change to obviate a client because the VPN doesn't work."

■ **Try SSL Web VPNs.** VPN devices or firewalls that offer an SSL Web VPN connection can significantly simplify connections for end users, says Bryce Edwards, general manager of complex infrastructure and managed hosting for The Planet (www.theplanet.com). "With this, all customers need is an Internet connection, a standard SSL-enabled Web browser, and they can access their hosted environment from anywhere in the world," Edwards says.

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News

Lack Of Data Retention Policies Could Be Costly

More than 85% of IT and legal professionals believe that having a formal data retention plan is important for knowing which information to retain or delete, but only 46% of organizations actually have a plan, according to a recent study released by Symantec. The study also found that many enterprises suffer from storage growth and increased litigation risk because they save information indefinitely instead of developing policies that let them delete unimportant data or records. Symantec's study reported that the consequences of information management missteps are severe, including skyrocketing storage costs and prohibitive recovery times.

SMEs Eager To Adopt Cloud Computing

According to IT software maker Spiceworks, 10% of SMEs plan to deploy new cloud computing services this year. The survey shows that 14% of SMEs are already using cloud computing services, and in the first half of this year, SMEs increased their use of cloud computing architecture. Among the survey of 1,500 SME IT professionals in enterprises with less than 1,000 employees, 22% of organizations with more than 100 employees either currently use or plan to use cloud-based services in the next six months. But there's still significant resistance to cloud adoption: Over the next year, 62% of SMEs say they don't plan to use cloud computing because of security and technology obstacles.

Third-Party Developers Slow To Patch Software

Microsoft Vulnerability Research reported that only 45% of third-party developers patched the vulnerabilities reported by Microsoft's security team between July 2009 and June 2010. The good news? The 45% rate is more than triple the number of developers who patched security issues reported to them between July 2008 and June 2009. More than 95% of the bugs were considered by Microsoft to be "critical" or "important," which are the two highest rankings in Microsoft's threat levels for patches. Microsoft says that many issues involve low-level architecture where vendors may need time to create and test any resolution.

Surveys Show Continued Growth In IT Hiring

According to the latest edition of The Dice Report, researchers at technology career Web site Dice.com have found that IT hiring in the United States and Canada is continuing to improve as the uncertainty of the recession begins to recede. In fact, 71% of the survey's respondents say they expect to increase their headcount more in the second half of this year than they did in the first, with more than half of those saying they expect to increase their workforce by as much as 10%. Similarly, the newest IT Monitor from CDW shows that 37% of large enterprises expect to hire more IT workers during the remainder of this year.

NETWORKING & VPN

Upgrading Building Wiring To Support Gigabit & Higher

Use The Newest Technologies & Follow Latest Standards

by Kurt Marko

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NETWORKS ARE THE NERVOUS SYSTEM of the modern enterprise, and, despite Wi-Fi's impending invasion of the office, eventually all bits must flow through cable, transitioning from radio waves to electrons and photons. Even in offices, for data-rich applications such as video editing, nothing on the wireless horizon will beat a switched, full-duplex GbE (Gigabit Ethernet) circuit.

"It's short-sighted to say you'd never need Gigabit Ethernet, even in the office environment," says Andrew Graham, a cabling expert at PTS Data Center Solutions (www.ptsdcs.com). In the data center, even GbE has been pushed to the brink as consolidated virtual server farms and converged LANs and SANs are driving the need for 10GbE and beyond.

These faster networks are stressing older cabling not designed for such high-frequency and low-loss requirements. Yet most IT managers look upon rewiring projects with about as much enthusiasm as a root canal. Graham finds that cabling projects are so disruptive and chaotic, most companies wait until they are expanding existing facilities or moving to a new one before ever contemplating replacing cabling. Ultimately, though, applications drive the need for faster networks and consequent wiring upgrades.

Network & Cabling Topology 101

Most Ethernet topologies use a two- or three-tier switch hierarchy, aggregating traffic from edge distribution switches back to a network core. A standard wiring layout known as structured cabling mirrors this hierarchical design. When sizing network links, the rule of thumb is that the bandwidth of aggregating backhauls should be about an order of magnitude higher than that of edge connections. Thus, if offices need GbE, then the inter-switch backhaul should be 10GbE. Likewise, a virtual server farm using 10GbE edge connections should utilize 40GbE or higher inter-switch links.

Standards for the physical and data link layers of wired Ethernet are set by the IEEE 802.3 working group, which includes dozens of specifications. Currently, most office LANs use Fast Ethernet (aka 100BASE-TX or 802.3u) at 100Mbps full duplex for edge connections, and its successor, GbE (1000BASE-T or 802.3ab) for servers, NAS arrays, and switch backhaul. Both typically run over UTP copper wiring.

The next speed grade, 10GbE, consists of several standards covering different types of cabling and interfaces. Originally envisioned as a switch uplink, the development of affordable server interfaces such as UTP, CX4, and SFP+ using copper cable, along with plummeting switch port and NIC prices, means 10GbE is showing up more on servers and storage arrays.

The most recent Ethernet specs boost throughput to 40Mbps and 100Mbps. The recently ratified base standard, 802.3ba, outlines a single architecture and the broad technology and requirements for components operating at both speeds. It also includes physical layer specifications for communication across backplanes, copper cabling, multimode fiber and single-mode fiber. Although 40GbE switches are now shipping, albeit at a price of about $1,000 per port, 100Mbps remains more of a dream than reality, particularly in the enterprise.

Cabling Specs: Copper & Fiber

Copper cabling specifications tend to evolve in lockstep with Ethernet standards, with each bump in bandwidth necessitating improvements in wiring technology. Use of UTP wiring for data distribution dates to the earliest days of enterprise networks, says David Lester, subject matter expert and master instructor for BICSI (www.bicsi.org), an IT professional association focused on the design of building wiring and cabling systems. Most people's first experience with UTP cabling was Category 5 (since superseded by the "enhanced" CAT 5E standard) and its now-familiar 8-pin RJ-45 connector, which was designed for 100Mb networks.

The next-generation CAT 6 cable, using slightly thicker wiring and better insulation, is today's workhorse. Designed for gigabit speeds over the traditional 100m distance limitation for copper cabling, it can even support 10GbE over shorter distances. Lester says CAT 6 is the baseline requirement for new office installations.

CAT 6A (Augmented CAT 6) tightens the CAT 6 standard to enable 10Gb operation over the full 100m copper range. According to Burton Group analyst Ken Agress, the primary difference is the addition of materials to prevent crosstalk from one bundle of twisted pairs from interfering with adjacent pairs (in the four-pair bundles used in all UTP Ethernet cables). CAT 6A is the most "future proof" UTP option and earns the recommendation of both Agress and Lester for new construction, but it comes at a cost, running about twice the price of CAT 6.

The latest twisted pair specs, CAT 7 and CAT 7A (Augmented CAT 7) were originally intended for 10GbE links, an application since overtaken by cheaper CAT 6A cable. These will eventually support 40Mbps and 100Mbps speeds over limited distances, but available products are still quite expensive, provide no benefit over CAT 6A for 10GbE networks, and should therefore be avoided, Lester says.

Although copper UTP is the most common and cost-effective solution for shorter runs (so-called horizontal distribution within an office floor or down a row of data center racks), optical fiber is usually required for links between edge and core switches. Fiber cabling comes in two types, MMF (multimode fiber) or SMF (single-mode fiber). Without digressing into the physics of light propagation, for IT buyers, the main differences are that SMF is more expensive (both for the bulk cabling and the terminating adapter electronics), physically much thinner, and capable of higher data rates over greater distances. Despite the upfront cost penalty, both Lester and Agress advise using SMF in new construction. For greater flexibility, Lester advises installing both SMF and MMF, using the latter at first for 10Gb and 40Gb equipment and keeping the former "dark" until needed. Like UTP cabling, there are several grades of MMF, although Lester says only the most recent standards, known as OM3 and OM4, which will support 40GbE over limited distances, are appropriate for new installations.

Recommendations

Aside from the wiring choices, Graham advises not overlooking the rest of the cabling ecosystem of conduits and cable trays. He says that these should be sized such that no more than 25% of the physical space is used on day one, with the goal of never exceeding 50% capacity. P

Key Points

- Data cabling standards progress in lockstep with speed increases in the underlying network protocols. Fiber optic has traditionally been used for high-speed interfaces; however, improvements to UTP copper cabling now enable its use for 10GbE networks.
- Following the best practice of a hierarchical network topology and structured cabling layout means 90m runs (plus 10m for patch panels) of CAT 6 (GbE) or CAT 6A (10GbE) are best for edge distribution within both offices and computer rooms.
- Longer cable runs between edge switches and distribution of core switches necessitates fiber optic cable. SMF is more expensive but supports essentially unlimited bandwidth and distance, and is thus preferred. If using MMF, stick to the latest specs, OM3 or OM4.

Office Building Structured Cabling

The structured approach to cabling involves designing cable runs and connections to facilitate identifying cables, troubleshooting, and planning for future changes. This entails establishing an MDA (main distribution area) and one or more HDAs (horizontal distribution areas).

The MDA houses the main cross-connects, as well as the core networking equipment, and is the concentration point for the cable plant of an entire building. The HDA houses cross-connects for distributing cables to the EDAs (equipment distribution areas). MDAs are typically wiring closets (in a building) or equipment racks (in a data center). In an office, these are strategically placed throughout the building to primarily support end devices such as desktop computers and phones. A multistory building would have at least one HDA, usually one per floor. Patch cables connect equipment such as servers and storage using patch panels in the EDA.

FEATURE PACKAGE

Virtualization

If your enterprise hasn't already begun investing in virtualization technologies, chances are it soon will. We run down upcoming trends in key virtualization areas.

The Rise Of Virtualized IT | 23
■ We cover virtualization's evolution, its status today, and where experts expect it to go in the future.

What's Ahead For Storage Virtualization | 24
■ Find out why storage virtualization is important for the small to midsized enterprise, see what's in store for the technology, and get a glimpse of how it will change in the coming years.

The Future Of Server Virtualization | 26
■ Although any degree of server virtualization stands to help most enterprises save on costs and physical space, expanding this capability could transform the way data centers are operated.

Virtualization & The Network | 26
■ As network environments become increasingly virtualized, more applications compete for bandwidth.

The Rise Of Virtualized IT

From Humble Beginnings In Mainframe Computers, Virtualization Is Now A Force To Be Reckoned With

by Sixto Ortiz Jr.

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TODAY, VIRTUALIZATION IS HELPING companies realize capital and operational expense savings by enabling the most efficient use of current data center hardware. The technology is also having a tremendous influence on all meaningful areas of IT, namely servers, storage, and networking.

Virtualization's influence will only grow as more and more companies embrace the technology's promise to enhance the efficiency of their IT operations. Read on to learn more about virtualization's evolution, its status today, and where experts expect it to go in the future.

Virtualization Yesterday

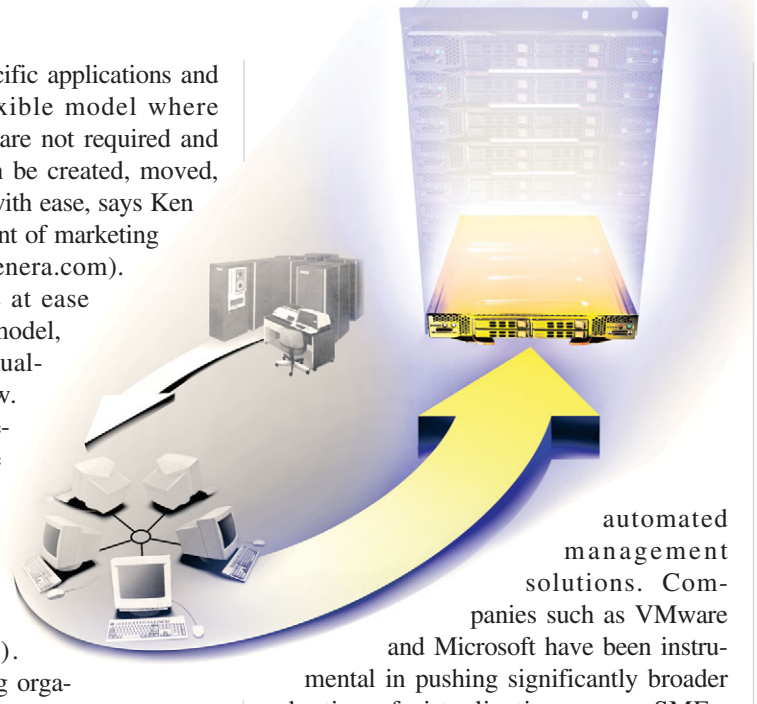
Most experts agree virtualization had its genesis during the mainframe era; back in the 1960s, IBM successfully applied virtualization technology to split centralized mainframe computers into separate virtual machines, says Julian Box, CTO at Virtustream (www.virtustream.com). But, adds Box, the technology lost steam during the '80s and '90s as client-server technologies flowered and gained traction with the advent of inexpensive servers and desktop computing.

Virtualization started to re-emerge as a viable technology in 1998, when VMware patented its virtualization technology for IA-32/x86 systems and then launched its Virtual Platform product in 1999, says Charles King, principal analyst at Pund-IT. At first, virtualization began its comeback in the province of software developers, who needed the capability to code software for multiple operating systems without having to invest in separate hardware platforms for each OS, King explains. Virtualization delivered the ability to host multiple OSes in a single hardware platform, thus delivering significant savings for software developers.

In 2003, EMC's acquisition of VMware, along with the launch of the open-source Xen hypervisor and Microsoft's purchase of virtualization assets from Connectrix, launched virtualization into its next phase: maximizing x86 server utilization by consolidating multiple OSes, applications, and workloads onto fewer machines, King says. This issue has become increasingly critical as skyrocketing hardware capabilities have resulted in vast underutilization of servers hosting typical business applications.

Virtualization Today

Today, virtualization continues to gain traction in a growing number of enterprises. In recent years, IT has undergone a behavioral shift as administrators get away from having to know the specific servers and resources used by specific applications and embrace a more flexible model where "hard" configurations are not required and virtualized servers can be created, moved, and decommissioned with ease, says Ken Oestreich, vice president of marketing at Egenera (www.egenera.com). As IT becomes more at ease with this computing model, he adds, uses for virtualization continue to grow.



The operational benefits of virtualization are beginning to take center stage, says Renata Budko, co-founder and marketing vice president at HyTrust (www.hytrust.com). New tools are enabling organizations to reduce server provisioning time, simplify business continuity strategy, dynamically optimize resource allocation, and automate many of the operations that previously required a physical presence, adds Budko. In short, organizations are using virtualization to implement agile, dynamic information systems.

In terms of network virtualization, the latest advances involve the virtualization of networking components, such as switches, routers, or firewalls, says Michael Hamelin, chief security architect for Tufin Technologies (www.tufin.com). Hamelin says some vendors are implementing multiple virtual firewalls within a single chassis, allowing customers to consolidate their physical environment and reduce both administrative overhead and physical cabling. Another trend, he adds, is the complete virtualization of the network or security device by running it on a hypervisor.

Key Points

- Computing has come full circle, from centralized mainframes to decentralized client-server computing back to a centralized computing model enabled by virtualization.
- As virtualization evolves to embrace other hardware elements, new challenges in terms of policies, security, and management will inevitably arise.
- The evolution of cloud computing and virtualization go hand in hand; virtualization is the engine that drives cloud computing.

Pund-IT's King says even though broad adoption of virtualization by SMEs lagged behind enterprises due to the technical skills required to implement and support it, the situation has changed over the past couple of years due to increasingly simplified and automated management solutions. Companies such as VMware and Microsoft have been instrumental in pushing significantly broader adoption of virtualization among SMEs. Given virtualization's essential role in cloud environments, SMEs using SaaS and other cloud-based services are probably reaping the benefits of virtualization whether they're aware of it or not, King says.

Virtualization Tomorrow

There is no doubt virtualization has a bright future as the technology continues to evolve. But how will this evolution take place? In terms of storage virtualization, the future means the complete removal of provisioning, says Dr. Geoff Barrall, CTO and vice president of engineering at Overland Storage (www.overlandstorage.com). The next wave of storage systems will remove the current state of "array-level dependency" and facilitate the creation of systems that closely resemble VMware virtualized server environments, Barrall says. In other words, virtual disks will be able to be migrated in real time between storage systems without interruption in service, making it possible to create any number of virtual disks or file servers, not bound by the underlying physical hardware.

Jason Dea, product marketing manager at Novell (www.novell.com), says now that the cost savings of virtualization have been realized and acknowledged, the focus is shifting to the promise of cloud computing, enabled by virtualization, as a better way for administrators to run workloads and potentially run new workloads that were not possible with yesterday's technology platforms.

Egenera's Oestreich foresees a continuation of the OS virtualization evolution as more functions are virtualized and more operations are automated. In fact, Oestreich believes today's virtualization management products may eventually evolve into tomorrow's data center management products. A new phase of virtualization, he adds, involves the virtualization of the "other half" of the data center. In other words, virtualization technology will move beyond virtualizing the OS and into I/O virtualization, network convergence, and virtual switching and storage addressing. Combined with OS virtualization, infrastructure virtualization (i.e., converged infrastructure/unified computing) will help virtualize the entire data center, not just the software, Oestreich says.

"This is the nirvana many IT people have been waiting for—the ability to logically compose an application, from the software down to the network and out to the storage," Oestreich says. P

Virtualization Timeline

1960s: IBM introduces virtualization as a way for mainframes to share expensive memory and split mainframes into multiple virtual machines.

1971: IBM begins commercial production of its S/370 systems and adds virtual memory as a standard feature the following year, says Charles King, principal analyst at Pund-IT.

1980s to 1990s: Virtualization loses steam as the client-server computing model takes hold and hardware prices plummet even as capabilities increase.

1990s: Virtualization breaks out of the mainframe as vendors such as IBM, Sun, HP, and SGI incorporate the technology into their Unix system, King says.

1999: VMware launches its Virtual Platform product.

2003: EMC acquires VMware.

2005: VMware releases VMware Player, a free player for virtual machines. Sun's Solaris 10 is released, including Solaris Zones, a virtualization product that works on x86, x64, and SPARC machines.

2006: VMware releases VMware Server as a free product for the server market. Microsoft releases Virtual PC 2006, a free product.

2007: VirtualBox Open Source Edition, an open-source virtualization offering under the GNU General Public License, is released by innoTek.

2008: Sun Microsystems announces agreement to acquire innoTek. VMware announces agreement to acquire Thinstall.

2009: EMC, Cisco, and VMware announce the Virtual Computing Environment coalition, an initiative designed to promote data center virtualization and a transition to private cloud computing structures.

News

Survey Shows Web 2.0 Concerns

About 82% of IT security administrators consider social networking, Web applications, and widgets to have significantly lowered the security posture of their organization. That's among the findings of the "Web 2.0 Security in the Workplace" study conducted by Check Point Software and the Ponemon Institute. The survey, which includes responses from more than 2,100 IT security administrators from all over the globe, reported poor workplace productivity, malware, data loss, and viruses as the primary threats associated with Web 2.0. About 77% of respondents say they plan to implement new technology to address these threats within the next five years.

Qwest Posts Downbeat Results

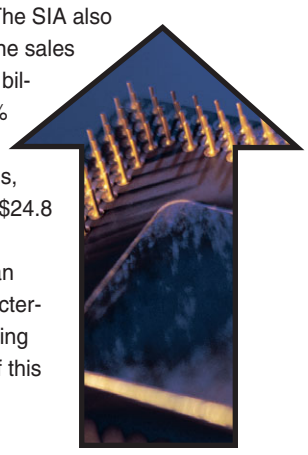
Qwest Communications recently released its financial results for the second quarter, and the figures were mostly down. Net income of $158 million, representing 9 cents per diluted share, marked a decline of about 25% from the second quarter of the previous year. The year-over-year comparison was made worse by one-time benefits in 2009 as well as more recent expenses related to the company's impending acquisition by telco CenturyLink (CenturyTel). One bright spot was an adjusted EBITDA margin of 37.3%, representing a jump of 200 basis points from the second quarter of last year.

Symantec Finalizes VeriSign Purchase

Symantec has completed its acquisition of VeriSign's identity and authentication business. Under the terms of the $1.28 billion cash deal, the security firm will take on VeriSign's services related to SSL encryption and code signing certificates, managed public key infrastructure, fraud detection, identity authentication, and the ubiquitous VeriSign Trust Seal found on etailer sites around the Web. Symantec will also assume a majority stake in VeriSign's business in Japan. Symantec president and CEO Enrique Salem says the acquisition will help Symantec "drive the adoption of identity security and restore trust online."

Global Chip Sales Strong In Second Quarter

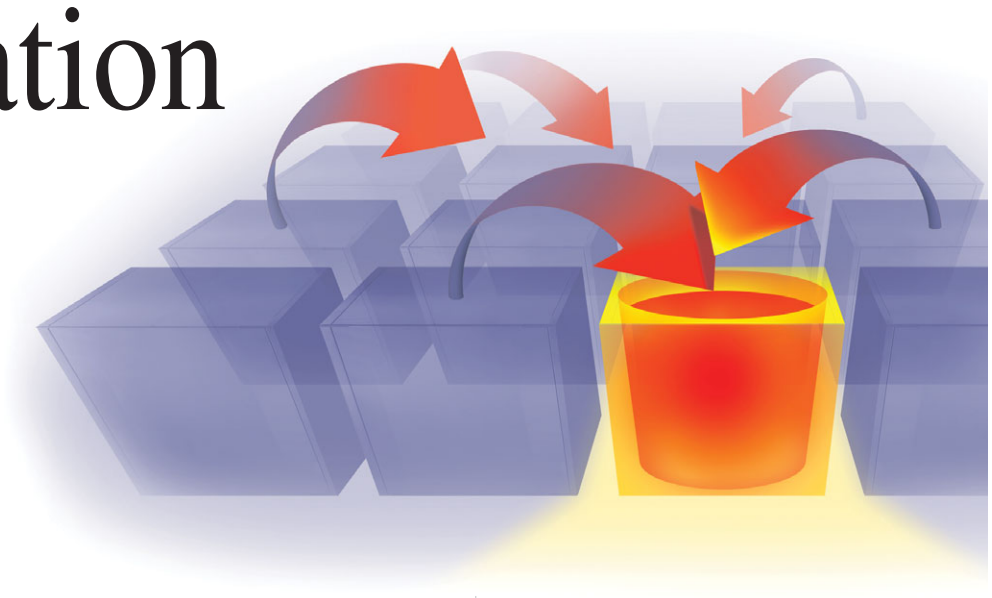
Strong demand from a range of end markets caused global semiconductor sales to increase in the second quarter to $74.8 billion from $51.7 billion for the same period a year earlier. Quarter-to-quarter sales, meanwhile, increased 7.1% from $69.9 billion, according to data from the Semiconductor Industry Association. The SIA also states that June sales totaling $24.9 billion were 0.5% higher than May sales, which totaled $24.8 billion. SIA President Brian Toohey characterized sales during the first half of this year as being exceptionally robust. "Worldwide semiconductor sales of $144.6 billion for the first half of 2010 were more than 50% higher than the same period of 2009 when sales were $96.1 billion," he says. "We expect that sequential growth rates will moderate in the coming months, with the result that year-on-year growth for the industry will be in line with our mid-year forecast of 28.4%."



FEATURE PACKAGE

What's Ahead For Storage Virtualization

Expect More Management, More Cloud & More Pools



by Chris A. MacKinnon

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THERE'S NO DOUBT that virtualization has changed the face of today's data center. Virtualization means less hardware, less money, and increased IT efficiency, and the technology and its benefits are starting to trickle into other areas of the data center. We've seen and heard a good deal about server virtualization, and now storage virtualization is becoming more mainstream in the data center, as well. Here we'll discuss why storage virtualization is important for the small to midsized enterprise, see what's in store for the technology, and get a glimpse of how it will change in the coming years.

Important Technology

Managing data growth is a challenge faced by companies of all sizes, but it is particularly acute for small to midsized enterprises, according to Kathleen Ferraro, vice president of product management and marketing at F5 Networks (www.f5.com). "These organizations are experiencing data growth and growth-related headaches at a level similar to their larger peers, but often with much smaller IT budgets and fewer staff resources," Ferraro says. "Storage virtualization can help these companies by not only lowering the per-gigabyte cost of storage capacity, but also by simplifying many of the data management tasks that currently consume their limited IT resources."

Fadi Albatal, vice president of marketing at FalconStor Software (www.falconstor.com), says storage virtualization provides the cost-conscious small to midsized enterprise a way to consolidate resources, to create a more efficiently utilized storage environment, and, ultimately, to reduce IT costs. "Once a consolidated, virtualized storage environment is in place, IT managers can deliver a host of differentiated storage services, including data protection services such as backup and replication for disaster recovery, at significantly reduced cost," Albatal says.

A Changing Technology

Srinivas Ramanathan, founder, president, and CEO of eG Innovations (www.eginnovations.com), says that in terms of the changing storage virtualization landscape, he believes there will be a similar parallel to how server virtualization has evolved. "A few years ago, the focus with server virtualization was on the hypervisor," Ramanathan explains. "Today, the hypervisor is a commodity. All the virtualization companies are focused on manageability to deliver the cost savings and the agility that enterprises are after. In my view, storage virtualization is a few years behind server virtualization in its maturity cycle."

Although server virtualization has become mainstream, Ramanathan says storage virtualization is not yet to that point. "The focus is very much on proving that the technology works now," he says. "A few years down the road, manageability will become important—how do you get the most out of your existing hardware, how do you dynamically move storage across VMs on different hosts, etc."

Galvin Chang, associate director of Infortrend Technology (www.infortrend.com), says the first stage of storage virtualization is to provide an appliance that can aggregate and process I/O commands of storage hardware from different vendors. In the next stage of storage virtualization, Chang says he sees the following issues as being important: scale-out storage, tiered and virtualized storage, virtualized storage for cloud data centers, and load balancing.

Key Points

- Storage virtualization is a few years behind server virtualization in its maturity cycle, so currently the biggest concern is proving that the technology works effectively.
- Scale-out storage, tiered and virtualized storage, virtualized storage for cloud data centers, and load balancing are expected to be important to the next stage of storage virtualization.
- Focus will also be placed on heterogeneous storage virtualization solutions and support for protocols that offer high-performance IP-based services.

According to Chang, using scale-up storage in a virtualization environment can only increase capacity and results in waste of previous investments; only scale-out architecture can unleash the storage performance and benefits from virtualization. (For more information on scale-out storage, see the "Introducing Scale-Out" sidebar.) Chang also says that virtualized storage should provide different service levels of storage management, including SSD, SAS, SATA, and even VTL.

For cloud services requirements, Chang says virtualized storage offers several benefits, including scalability, data management without downtime, and lower costs. He says another key issue will be how to balance the workload of controllers and host bandwidth when multiple storage controllers are introduced into a virtualized storage pool. "Vendors should implement intelligent host agents or leverage network layer protocols for load sharing," Chang notes.

Technologies & Trends

What are the current, hottest technologies and trends related to storage virtualization? According to F5's Ferraro, data deduplication and cloud storage are two to watch. "Because data continues to grow at such a rapid rate, businesses are constantly looking for ways to further lower the costs of storing that data," she says. "Storage virtualization is a key enabler of these technologies because it reduces two of the primary hurdles for their adoption. Storage virtualization can not only automate the manual process of identifying data suitable to be stored on these types of storage, but it can also move that data without disrupting users and applications, according to predefined policies."

According to Albatal, a few exciting new technology trends include homogeneous data protection services in heterogeneous virtual storage environments, the use of SSD technology to accelerate SAN performance, and the automated migration of data throughout the storage infrastructure based on QoS (quality of service) requirements. "Storage virtualization will be widely adopted as a best practice through the IT world, and the virtualized SAN will become the de facto standard of how to deploy and manage storage environments," he says.

Albatal says SMEs can expect to see more offerings of heterogeneous storage virtualization solutions as well as support for new protocols, such as Fibre Channel over Ethernet, that provide high-performance services over IP.

In Ramanathan's opinion, a good deal of focus is going into where virtualization will be implemented—host-based, network-based, or storage-based. "All of these choices have their own pros and cons," he says. "There is also a lot of emphasis on allowing storage virtualization to consolidate heterogeneous storage systems into a common storage pool, with common management, common protection, etc. The goal of storage virtualization is to give you a choice in selecting storage arrays from different vendors and providing you with enterprise features like dynamic provisioning and dynamic data migration." P

Introducing Scale-Out

Galvin Chang, associate director of Infortrend Technology (www.infortrend.com), says that traditionally, the only way to increase storage performance is to buy new storage to replace the older equipment, otherwise known as scaling up. "Using this method, IT managers have to deal with downtime to migrate data to new equipment, with the added disadvantage that the old storage equipment is no longer used," Chang says. "For storage virtualization technology, innovative 'scale-out' architecture has been introduced. This architecture eliminates downtime when new storage hardware is added. In addition, scale-out technology can protect all storage investments in the future."

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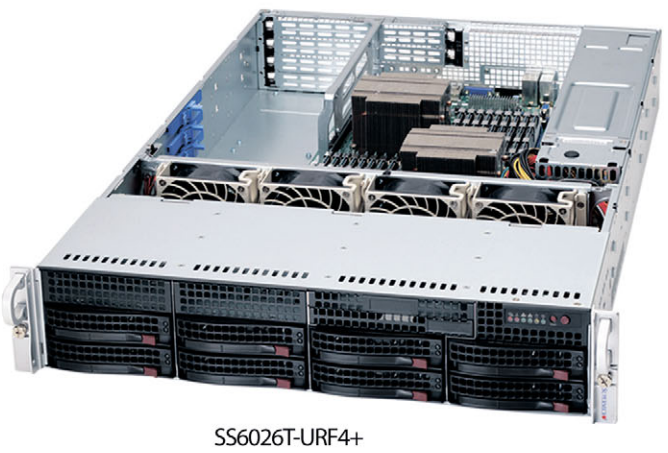

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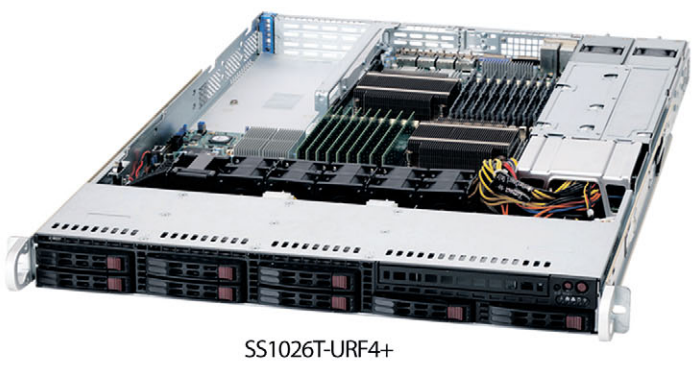

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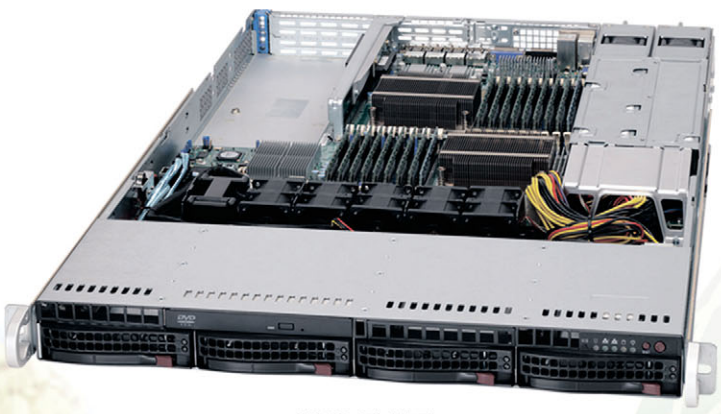

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FEATURE PACKAGE

The Future Of Server Virtualization

The Focus Is On Working Out The Kinks In A Fairly Well-Established Technology

by Robyn Weisman

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In October 2009, AFCOM (www.afcom.com) released a survey showing that almost 73% of all data centers have implemented some form of server virtualization. Jill Eckhaus, CEO of AFCOM, says that this adoption rate will increase, especially with the advent of cloud computing, because server virtualization makes data processing more efficient and effective. "Given budget restrictions, it makes sense to virtualize so that maybe you don't have to expand your data center or buy new equipment," Eckhaus says.

Although any degree of server virtualization stands to help most enterprises save on costs and physical space, expanding this capability could transform the way data centers are operated. "It used to be that you would set up a data center, and there would be 150 servers in there, and all these different custom applications, and your users would access them," says Blane Warrene, CEO of social media archiving solutions provider Arkovi (www.arkovi.com). "But in the last five years, virtualization has taken over, and now you can go from having a monstrous data center with hundreds of servers to having a very small footprint of virtual servers doing the very same things."

Key Points

- Server virtualization is fairly widespread among data centers; however, its usage is typically limited to simple app servers and Web servers.
- Server virtualization has stalled to some degree because of concerns about performance, among other things.
- Improved communications between IT and management, along with cheaper equipment and cloud-based options, should cause usage to increase over the next several years.

In order for this vision to be realized on a large scale, certain issues need to be addressed head-on. Most experts agree that server virtualization only stands to increase in prominence—the big questions revolve around how this future will be realized.

Addressing VM Stall

David Marshall, founder of VMblog.com, author of "VMware ESX Essentials in the Virtual Data Center," and technical editor of "Virtualization for Dummies," says that for the most part, organizations using server virtualization in their data centers are virtualizing only about 20 to 30% of their environments. "That is about the average rate at which organizations hit the ceiling as far as how much of their environment is virtualized, usually because they stop at the low-hanging fruit and don't [virtualize] their mission-critical applications," Marshall says.

Marshall calls this 20 to 30% ceiling "VM stall." He says that most organizations moving toward server virtualization have started by virtualizing their test dev environments, Web servers, simple app servers, and some infrastructure-related items, such as Microsoft Active Directory. "They're consolidating, trying to shrink power [usage] and data center real estate footprint," he

Virtualization & The Network

New Virtualization Technologies Mean Increased Demand On Network Resources

by Phil Britt

• • •

Ask about the best ways to improve data center efficiency, and the most popular answer is likely to be "virtualization." The ability to consolidate devices saves on hardware costs, energy, and other overhead of operating a data center. It also changes the configuration, management, and concept of the network.

At 15 to 20% penetration—where many enterprises are now with virtualization, according to Patrick Ancipink, vice president of product marketing for service assurance at CA Technologies (www.ca.com)—there is little effect of virtualization on the network. But once enterprises go past that point, as many are looking to do today, the impact is much more pronounced. To that end, here is a closer look at how virtualization affects a network and what it means for your enterprise.

Bandwidth Becomes Critical

As network environments become increasingly virtualized, more applications compete for bandwidth. This can lead to bottlenecks when two or more applications are running at the same time because the network devices are all running at higher levels of capacity than they did in a nonvirtualized environment.

So Ancipink recommends testing applications before moving into a virtual environment to protect against too many applications attempting to access too few resources, especially during peak periods.

If tests indicate that there will be too much competition for the underlying network resources, Ancipink recommends reallocating resources in the network or using a hybrid approach that virtualizes some applications and not others.

As enterprises increase their use of virtualization, some will find that some applications don't work as well in a virtualized environment, Ancipink adds. In those instances, parts of the network might be virtualized initially and then pulled back as problems crop up.

As the penetration of virtualization grows, so will the need for bandwidth and faster communication speeds, agree Josh Stephens, vice president, and Joe Sirrianni, senior director of strategy, for SolarWinds (www.solarwinds.com).

"One of the challenges for the network as virtualization grows will be to handle the new traffic that wasn't there before," Stephens says. "As bandwidth management challenges grow, Gigabit Ethernet will no longer be enough. So companies are already starting to look at 10, 40, even 100Gb Ethernet." Enterprises will be seeking to upgrade switches and any other areas of the network in order to boost performance.

Key Points

- Virtualization, which has low to moderate adoption today, will reach 50% adoption in the next few years, according to analysts.
- Virtualization complicates security on the network, requiring more diligence and more complex security solutions.
- Increased penetration of virtualization means networks will have to adopt faster connections and greater bandwidths.

Equipment Evolution

Shawn Cooney, director of research and co-founder of Certeon (www.certeon.com), adds that network equipment will change to coincide with the increase of virtualization. In addition to servers and virtual machines, there will be virtual network appliances, some of which will be designed to manage many of the functions of network virtualization. These appliances will help consolidate the management needs of the virtual network.

"In the future, you won't have virtualization without WAN optimization," Cooney says. "Once it is up and running, you don't need to add another management system. You will be able to bunch all of the software on a standard server and deliver it to the end user."

A Forrester Research report adds that moving a workload from one brand of hypervisor platform to another is difficult in today's virtual networks, so for most firms it is better to stay on a common platform. Platform-independent software (such as interpreted rather than compiled applications) can be migrated more easily. New release management and software development technologies that are already emerging will enable heterogeneous platform support and make heterogeneous platforms more acceptable.

Security Considerations

Security is more complex in the virtualized environment, a situation that will grow more complex as the virtualization grows, says Eric Chiu, president and CEO of HyTrust (www.hytrust.com).

"With the physical network, you could see and touch all of the hardware," Chiu explains. In such an environment, it is relatively easy to separate applications requiring high levels of security, such as financial transactions, from those needing little or no security, such as the corporate calendar—they would run on different servers.

In a virtualized environment, however, these applications are much more likely to be running on the same server, so it's important to have the proper firewalls and other security measures in place to ensure the security of financial transactions by keeping them on separate virtual machines from the less sensitive data.

"In the physical world, that never happens," Chiu says. "You need to understand your environment and your security needs for the applications that you plan to run. Your security requirements should dictate the tools that you use. If you have only 10 servers, then you can get by with very rudimentary tools that come off the shelf. If you are in a large data center with thousands of

says, labeling this the "first level of maturity."

To get above that 30% threshold, enterprises will have to start virtualizing their enterprise-ready and mission-critical applications, such as mail servers and database servers. "The notion of 'one app, one server' has worked because you know you have plenty of extra bandwidth on that server and plenty of resources to cover this application," Marshall says. "If you put database servers or mail servers in a VM, you're almost guaranteed to have better uptime, but if my performance goes down, am I going to get phone calls [from people] complaining that email is running really slowly?"

Marshall explains that IT people are in a sort of catch-22. "Executives expect virtualization in their organizations because that's what they're being told by the pundits and media and analysts, but they don't care about the back-end. They just want the stuff to work," Marshall says. "So I think it's a mindset thing, where IT [feels that] its butt is on the line if they take a chance that performance might be poor," as a result of virtualizing these mission-critical applications. Clearly, communication between executives and IT needs to improve to take that important next step.

Server Virtualization Security: Focus On The Data

As you consolidate by combining multiple virtual machines onto a given server, you fundamentally change the overall structure of your IT security program, says Gretchen Hellman, vice president of marketing and product management at Vormetric (www.vormetric.com).

Hellman explains that virtualization brings about portability, where operating environments can easily be copied and placed on a USB drive. In addition to the ease of cloning these environments, you have mixed trust environments on the same physical machines managed by the same system administrator, which further dilutes the current security frameworks that have been developed over the past several years.

According to Hellman, you need to focus on securing the data traveling over your operating environments, no matter where that environment goes. "Data-centric security policies and controls, where information is encrypted and only can be decrypted for the right user or right process, are going to become more and more important as we move to more virtualized environments," Hellman says.

Commoditizing Server Virtualization

Despite their seeming lack of interest in back-end integration and the nuances of server performance, executives tend to like talking about money, especially when savings are involved. To that end, the virtualization stack, which includes management applications as well as the underlying core infrastructure (i.e., the hypervisor), has improved its performance while dropping in price.

In addition, the hardware needed for server virtualization, including server boxes, new chipsets, cabling, and switches, has also become more affordable and easier to set up. "As they continue to advance at the rate that they currently are, it gives more validity and justification to moving the enterprise apps and mission-critical apps over," Marshall says.

For her part, AFCOM's Eckhaus sees cloud providers taking increased responsibility for server virtualization. "Data center managers aren't going to have to worry as much about it as data centers move toward the cloud," she says. "Instead, cloud service providers, who have most of the equipment, will be [responsible for it] and will virtualize their entire operations because they're going to be running so many things from many different companies."

Top Trend: Converged Management Duties

As the penetration of virtualization continues to grow, one of the top trends in the data center, according to Joe Sirrianni, senior director of strategy for SolarWinds (www.solarwinds.com), will be the elimination of the defined and separate duties of the managers responsible for network, systems, and storage. The more virtualized the data center, the more important it is that these personnel work in tandem rather than having their own separately defined responsibilities.

"You have to work as a team," Sirrianni says. "You have to be able to look at the network, systems/applications, storage, and virtualization and see how they all interoperate. You have to be able to plan, or you will pay the cost down the road. You have to be able to get out in front [of increased virtualization] in order to manage it."

Eventually, those teams/managers might merge completely, with all having cross-disciplinary knowledge, but Sirranni doesn't expect that to happen for a while.

hosts and virtual machines, then you need much more sophisticated tools."

Chiu further recommends that the virtualized network adopt a project management system in order to handle the much faster rates of change in the virtualized environment; a typical virtual machine will move 10 times during the course of a typical day.

Keeping sensitive data separate from other information can help prevent accidental data breaches in a virtual environment. Just as important—and another data security concern—is the actual intrusion by a hacker into a virtualized environment, according to Edward Newman, global practice director for cloud and virtual data center services at EMC (www.emc.com). A compromised hypervisor can provide a hacker with unlimited access to all hosted machines on a physical server.

Due to the fast-changing nature of the virtual environment, it's much more complex to identify and isolate which virtual machines have been hacked and to troubleshoot those and any other issues, Newman explains. He recommends using a system that tags packets rather than the physical machine in order to more quickly spot and correct any issues.

All of the experts agree that the complexities for the network will continue to grow as the penetration of virtualization escalates, including some issues that may not yet be foreseen. They agree that the best strategy for handling the changes, including unexpected challenges, is to do as much advance planning as possible, because although some of the exact challenges might not be known, there is no doubt that virtualization will continue to grow.

News

First Android Trojan Identified

Kaspersky Lab discovered what is believed to be the first Trojan to attack Google's Android-based devices. The malware, Trojan-SMS.AndroidOS.FakePlayer.a, is downloaded by the user via a Web site prompting the user to install a media player app. The malicious software will later send SMS text messages to premium rate services, costing the user each time a message is sent. This app was found outside of the Android Market—Google recommends only downloading apps from sources you know and trust. Currently, only Android smartphone users in Russia have been affected by the Trojan.

Senate Raises H-1B Fees

The U.S. Senate passed a bill that would increase H-1B visa fees to help pay for $600 million in security improvements along the U.S./Mexico border. The fees would be used to pay for new border patrol agents, operating bases, and unmanned surveillance aircraft. The Senate bill would raise fees on H-1B and L-1 visas by $2,000 per application for firms that have more than 50% of their employees using those visas. The Indian government has protested the measure, saying it unfairly targets Indian firms, even though they account for a small portion of the visas issued.

Smartphone Shipments Up 13% Year Over Year

About 308 million mobile phones were shipped in the second quarter, which is a 13% increase from the second quarter of last year when 273 million devices were shipped, according to Strategy Analytics. Nokia and Samsung lead the pack among handset manufacturers, with 111.1 million and 63.8 million handsets shipped, respectively. Nokia has 36.1% market share, down slightly from a year ago when it had 37.8% of the market. Samsung has a 20.7% market share, which is up from 19.1% at the same time last year. LG, RIM, and Sony Ericsson round out the top five.

Cisco Sees Profits But Falls Short Of Expectations

Cisco's quarterly financial report shows that the company enjoyed a 79% year-over-year increase in net income during its fiscal fourth quarter, reaching $1.9 billion compared to $1.1 billion a year ago. Cisco also reported earnings of 43 cents per share, which just beat Thomson Reuter's prediction of 42 cents per share. Although the numbers reflect an upward trend, Cisco fell short of financial expectations overall. It hit a sales mark of $10.84 billion, short of the expected $10.88 billion.

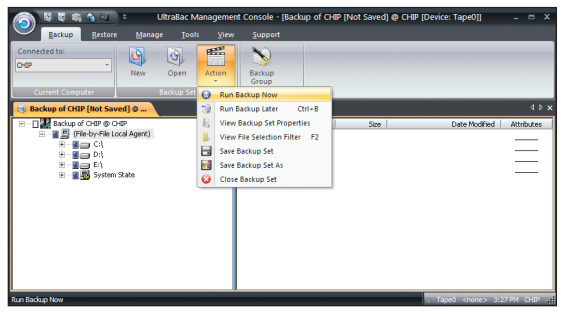
Cloud Driving Hardware Growth

According to IDC, the market for cloud computing server hardware will almost double in revenue by 2014. Revenue for server hardware related to public cloud computing is expected to grow from $582 million to $718 million between 2009 and 2014; private cloud computing server revenue is expected to grow from $2.6 billion to $5.7 billion during the same time. IDC notes the private cloud computing market is more viable for single enterprises and public clouds are less popular among bigger businesses.

STORAGE PRODUCT SPOTLIGHT

Disaster Recovery

	Bus-Tech MDL-4000	C7 Data Centers Disaster Recovery	Consonus Business Impact Analysis
Product		C7 DATA CENTERS	consonus Get IT. Virtually anywhere.
Description	Bus-Tech's Mainframe Data Library 4000 is a tape-on-disk controller that offers mainframe environments the performance and disaster recovery advantages of open systems technology. The MDL platform is designed for high availability and can deliver more than 1GB of data per second. The MDL scales from four FICON/ six ESCON channels and 512 tape devices to eight FICON/12 ESCON channels and 1,024 tape devices. • Two to four redundant, independently operating emulation nodes • Two redundant access control points • Ability to attach large-scale storage arrays • Full RSA PKI data encryption **Best For:** Streamlining mainframe backup and transport times for offsite disaster recovery while increasing data security. **Price:** Starts at $145,250	C7 Data Centers provides a colocation service geared toward disaster recovery and data backup. Customers start with the Full Cabinet Special option and customize it to fit their needs. C7 Data Centers also provides ESX virtual servers that can be used as part of a hybrid solution to reduce downtime during switchover to primary. • Low power rates • Full cabinet is 42U in size, uses 20A/110V power, and offers 5Mbps bandwidth • Migration services available **Best For:** Companies that want a colocation solution for their disaster recovery needs. **Price:** Starts at $688	BIA (Business Impact Analysis) from Consonus is an information-gathering exercise that helps companies assess disaster prevention and recovery needs. Consonus sends experts to interview key stakeholders within the company to discover threats and vulnerabilities so that a business continuity plan can be created. • Indentifies critical business processes and IT services • Determines business case and requirements for continuity • Performs IT risk assessment and outlines applicable disaster scenarios • Helps identify costs linked to failures, such as replacing equipment and loss of cash flow **Best For:** An SME that wants to create a disaster recovery strategy with expert input. **Price:** Starts at $25,000

	PlateSpin Forge	Rackspace Data Replication Services	UltraBac
Product		rackspace® HOSTING	
Description	PlateSpin Forge is a disaster recovery hardware appliance that protects both physical and virtual server workloads using embedded virtualization technology. In the event of a production server outage or disaster, workloads can be rapidly powered on in the PlateSpin Forge recovery environment and continue to run as normal until the production environment is restored. • Protection for up to 25 server workloads • 32GB memory • 3.5TB internal capacity • iSCSI or Fibre Channel expandable **Best For:** Companies that need an easily configurable disaster recovery solution. **Price:** Starts at $39,395 (10 workload capacity)	Rackspace offers a suite of hosting solutions that protect, replicate, and help recover your data if an outage or disaster occurs. Rackspace can help you determine the right solution for your particular technical and budget requirements. Each solution is fully managed 24/7/365 by Rackspace's experts and backed by its Fanatical Support. • Managed Backup tape- or disk-based backup to minimize data loss • Host Based Replication Services to replicate your server data for geo-redundancy between Rackspace data centers • Enterprise Replication Services to replicate file- and block-level data between Rackspace data centers using dedicated SAN or NAS arrays • Customized solutions to address your disaster recovery needs via Rackspace's Professional Services group **Best For:** Storing or replicating critical data, servers, or apps in secondary, geographically dispersed locations.	UltraBac is a software solution that features multiple tools for file-by-file backups and is specifically designed for the latest Windows operating systems. It includes encryption, Exchange backup, and a scheduler that allows for customized backup times. • Compressed disk-to-disk backup to reduce disk storage requirements • Can back up and restore an active Windows cluster • Express Index pinpoints exact location of files on tape to improve restore times • Backs up locked exclusive files and files that are open at time of backup • Single Mailbox Backup to individually back up company mailboxes **Best For:** Companies that need a wide range of backup solutions for all types of data.

Processor's Product Spotlight highlights options available in key data center product categories, providing product information side-by-side for easy comparison.

Compiled by Josh Compton

Consonus Disaster Recovery Assessment

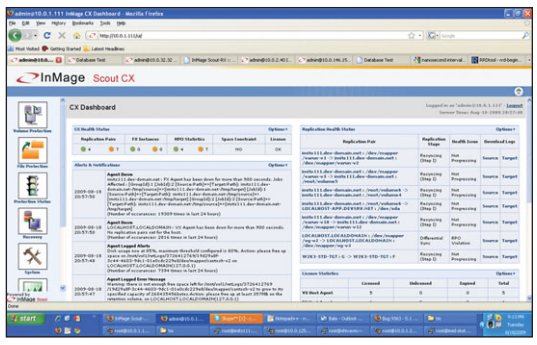
Consonus' Disaster Recovery assessments can help SMEs build effective disaster recovery plans that address data recovery, hardware, and software as well as IT personnel, facilities, and recovery procedures that enable them to restore critical IT services in the event of a disaster.

- Defines scope and objectives
- Captures requirements
- Documents current capabilities (operational baseline)
- Analyzes gaps
- Recommends future state

Best For: SMEs looking for a disaster recovery plan that covers all of the essentials.

Price: Starts at $10,000

InMage



InMage's core product is a software-based solution that provides disk-based data protection and application-aware recovery. It can help minimize or eliminate the use of tape for data protection by front-ending existing tape-based configurations.

- Disaster recovery for any application that supports long-distance requirements using IP-based networks
- Automates application recovery in addition to recovering data
- Includes hybrid technology that eliminates backups while supporting RPO/RTO requirements
- Preserves existing data protection products and processes by supporting heterogeneous servers and storage

Best For: Enterprises that need to meet stringent disaster recovery requirements while eliminating the impacts of local backups in heterogeneous environments.

Price: Appliance starts at $5,000; data taps between $1,500 and $4,000 (one per server)

Of Special Interest To Health Data Centers

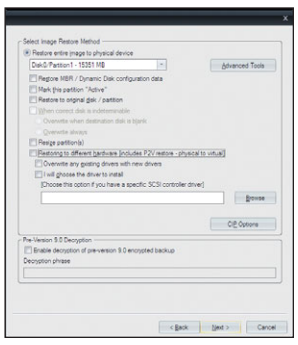
Iron Mountain Digital Record Center For Medical Images

Iron Mountain's Digital Record Center for Medical Images is a cloud storage service for both backup and archiving of radiology, cardiology, and all other digital medical images. Options include onsite, offsite, and hybrid storage for data backup.

- Low-cost, highly secure, and accessible storage
- Access, preservation, and migration handled by Iron Mountain
- Eliminate manual backup processes
- Helps meet privacy and security regulations such as HIPAA
- Three service plans: Mirrored Cloud, Hybrid Cloud, and Hybrid Cloud2
- Optional onsite storage
- Data Shuffle Service for moving large amounts of data to Iron Mountain's data center

Best For: Optimizing storage for both backup and archiving for hospitals and health organizations of all sizes.

UltraBac UBDR Gold



UltraBac's UBDR Gold is software that provides image backup and disaster recovery for information on physical or virtual servers. UBDR Gold can be licensed independently or integrated with UltraBac file-by-file software.

- Performs dissimilar hardware restores, including one or more disk partitions
- Features physical-to-virtual, virtual-to-virtual, and virtual-to-physical disaster recovery
- Restore failed machines to their previous operational status at up to 7GB per minute
- Automatic backups and restores for remote sites without local administration
- Optional agents for VMDK, UltraCopy, Tivoli Storage Manager, SFTP/FTP, and media libraries

Best For: Companies in need of physical and/or virtual backup solutions.

Vision Solutions Double-Take For Windows

Double-Take for Windows from Vision Solutions is a high availability and data protection solution for Windows environments. It features replication and failover technology that captures byte-level changes in real time.

- 64-bit support
- Hardware- and application-independent for use with any hardware or software options
- Integrates with existing backup solutions
- Allows multiple production servers to use the same target server
- Unlimited distance replication so disaster recovery sites can be in any location

Best For: Companies that need a data backup solution designed for Windows servers.

Vision Solutions EchoStream For AIX

Vision Solutions' EchoStream for AIX is an AIX-specific software suite that provides real-time data replication and allows for quick recovery in case of disaster. EchoStream can also recover deleted or damaged data from any point in time.

- Vision RightTime CDP for flexible recovery
- Vision TimeView allows you to run backups from replicated data and validates role swap in case of disaster
- Vision IntelliStart provides guided installation and auto-discovery of system environment
- Vision AutoGuard includes advanced automation, monitoring, and alerting

Best For: Enterprises that use AIX environments and need a suite of disaster recovery solutions.

News

Cloud Computing To Drive Hardware Sales

The adoption of cloud computing will spur sales of hardware such as servers over the next few years, according to research by IDC. The firm's recent Worldwide Enterprise Server Cloud Computing 2010-2014 Forecast says that both public and private cloud growth will have a positive effect on server sales.

The former has the smaller market, IDC says. Public cloud computing has to do with offsite systems hosting a company's compute needs for a fee. Server hardware revenue for public cloud infrastructure should meander upward from $582 million last year to $718 million in 2014, according to IDC. This is news of note to the small and medium-sized enterprise, as the paradigm tends to apply more heavily to SMEs than its private counterpart.

"IDC has found that SMEs are more open to the public cloud than the private cloud," says Katherine Broderick, senior research analyst for servers and data centers at IDC. "IDC believes that SME cloud adoption will be either smaller SMEs moving their entire IT shop to the public cloud or larger SMEs moving specific applications or workloads to the public cloud."

Private Cloud Growth

Private cloud computing largely concerns bigger companies seeking to pool IT resources for use solely within the organization, often via preintegrated, converged systems. About 44% of those polled by IDC indicated that their organizations were considering a move to a private cloud in the future.

The private cloud sector will see the more dramatic growth, IDC says. The firm predicts private cloud server revenue will vault from $2.6 billion last year to $5.7 billion, more than doubling by 2014. However, this half of the $6.4 billion cloud computing segment doesn't hold as much attraction for the small and mid-sized organization, according to IDC.

"As for SME private cloud adoption, IDC doesn't see a great fit right now. Most private cloud solutions are best for enterprise-sized IT organizations," Broderick says.

"Private cloud savings from increased IT efficiencies are not easily realized in smaller organizations," Broderick continues. "The licensing cost for management software is, for many SMEs, larger than the potential savings."

by Marty Sems

STORAGE

CASE STUDY

A Safe & Reliable Storage Solution

Pillar Data Systems Helps Manufacturer Get Its Virtual Infrastructure Under Control

by Robyn Weisman

• • •

Pleasanton, Calif.,-based Simpson Strong-Tie has been developing and manufacturing structural connectors, prefabricated shearwalls, anchors, fasteners, and other residential and commercial housing reinforcements for more than 50 years. Its first innovation was a joist hanger designed to connect the ends of 2x4s being used for a flat roof.

"It was the first set of connectors using metal brackets that allowed two pieces of wood to be attached securely, vs. nails that don't stand the test of various forces like wind and shearing," says Eugene Alfaro, manager of global IT operations and support for Simpson Strong-Tie. "It's a requirement for the engineering and retrofitting of buildings and homes in California and now has become a standard practice in virtually every wood-constructed home and commercial building."

Simpson Strong-Tie had outgrown its IT infrastructure. "Virtualization was getting introduced, along with more critical systems like SQL databases and transactional systems," Alfaro says. "The company already lost email data twice in as many years because of either poor backups or unreliable storage or server systems, and we needed to find an enterprise-class storage solution to do clustering [and] data replication to our disaster recovery site."

Although better-known options were available, Simpson Strong-Tie chose Pillar Data Systems' Axiom storage solutions (www.pillardata.com). Not only did Simpson improve its utilization rate by 30%, the company lowered its overall storage costs by 38% and saved close to $50,000 per year in support services because of Pillar's simple yet powerful management features.

Simplicity From The Ground Up

When Alfaro began looking for enterprise-class storage, he focused on big-name vendors because he was more familiar with them. During the search, a Simpson Strong-Tie partner suggested he check out Pillar's Axiom hardware solutions. Alfaro was so impressed by Axiom's simplicity and power that he ultimately chose Pillar over its better-known rivals, even though there was only a slight cost savings between Pillar's solution and a bigger vendor's offering. "If all else was the same and everyone gave me exactly the same price, we still would have chosen Pillar," Alfaro says.

Alfaro cites Axiom's inherent simplicity as a huge driver for choosing Pillar for its new storage solution. "When it comes to planning your storage infrastructure, it's always such a dramatic event [because] you have to know everything you have and [where] you want to put your email and your SQL database, for example," Alfaro says. "And no one ever knows what their environment will look like three years from now, as much as we plan."

Pillar's Axiom has given Alfaro's team the ability to move data around and give it different levels of classification without having to physically tell it where to go. "It resonated with me that Pillar's system is a full rewrite from the ground up, with the company really looking at how storage is done in a virtualized environment," Alfaro says, adding that when a given technology has grown stale, too often users inherit all the legacy code, which creates complexity and limits innovation.

In contrast, Axiom's simplicity directly affects both its supportability and its stability. "The more complex the system, the longer it takes to resolve issues, not because it's not an intelligent application, but because it's so complex that we in IT can't figure it all out. If we can't figure it out, we're going to miss something. When we miss something, we create an unstable environment," he says. "When we got a chance to see how [Axiom] allocated a LUN (logical unit number), allocate space, grow it, and change quality of service, I frankly looked at it and thought, 'This can't be true,' because I've used [other solutions], and it just ain't that easy."

Stability For IT Professionals

Axiom's ease of use and overall stability was evident soon after Alfaro hired an admin named Maurice to oversee the virtualization of Simpson Strong-Tie SAN setup. The admin had worked extensively within other environments but had no training with Pillar's environment. "He'd say, 'I just set up a LUN, but what else do I need to do?' And I'd say, 'Go to the server, set up your LUN connection, and you're done, dude,'" Alfaro says.

But Maurice didn't seem convinced initially that the Axiom environment could be so simple. "It's because he's gotten so burned in the past by the complexity of previous environments he's worked on," Alfaro says.

"Every so often, he used to [say], 'I don't know if I want to set up this LUN yet because we're setting it up with low QoS priority and we're not doing double-parity, and do we really want to do read bias? Because maybe we should do random write or write bias on the performance,'" continues Alfaro. "And I'd say, 'No, set it up. Put it in. Once it goes live, see whether or not we've got queuing on the read side or on the write side. If we get a lot of heavy queuing on the write side, no problem; change your I/O priority to write bias.'"

Axiom has been easy for Maurice, even though he has yet to go through formal training. "Frankly, I don't think he needs to anymore," says Alfaro. It helps that Pillar's technical support team offers a deep level of expertise whenever it is needed. "The people who can immediately resolve issues are the same people who supported us in the beginning," he adds.

Fast Implementation

According to Alfaro, Simpson Strong-Tie uses four Axioms total in its worldwide network. It uses Axiom 600s, each of which runs about 20TB of raw data, in its Pleasanton headquarters and in its McKinney, Texas, secondary data center and disaster recovery location and uses the smaller Axiom 300s, each of which runs 10TB raw data, in its Frankfurt, Germany, data center and at another data center in Denmark. Simpson started migrating to the Axioms in the fall of 2008 and completed deployment by January 2009.

Simpson Strong-Tie used several non-critical servers in its testing environment. "[The Axiom] came in shipped as a floor rack, ready to go with the wires all color-coded. [The Pillar team] came in at 10 a.m. and left at 2 p.m. They set up the LUNs for the temporary servers, and that night, we already had servers that were doing some cycles of copies and deletes," Alfaro says.

According to Alfaro, Simpson Strong-Tie ran this test setup for about a week before its next maintenance window and then began building its new Exchange server. Critical systems were running live on the Axiom in the main data center within a month and replicating to the McKinney data center.

Pillar's Axiom gives Alfaro's team the flexibility to pop another 10TB into it or change to higher-quality storage on the fly. "I don't have to go through the whole forklift," Alfaro says. "We can change it, flip it, or move portions dynamically from SATA to SSD. That's unheard of." P

Pillar Data Systems Axiom Storage Systems

Storage system that provides dynamic provisioning for applications via its patented QoS (quality of service) features; up to 80% utilization of storage space; support for multiple drive types; and an easy-to-use modular architecture designed for high availability, scalability, and flexibility.

"Pillar's system is a full rewrite from the ground up, with the company really looking at how storage is done in a virtualized environment," says Eugene Alfaro, global IT operations manager at Simpson Strong-Tie.

(877) 252-3706 | www.pillardata.com

The Zettabyte Data Revolution

Storage Needs Are Growing Beyond Garden-Variety Gigabytes & Terabytes

by Bruce Gain

• • •

How to securely and efficiently manage the exponential growth of data in the enterprise has traditionally represented a major challenge for IT admins. But in just a few years, new storage technologies and user needs will serve as a catalyst for an even bigger data explosion than ever seen before. This year alone, the amount of data created worldwide will total 1.2 million petabytes or 1.2 zettabytes, according to analyst firm IDC. That total will increase 44 times over from 2009 to 2020, IDC says.

Enter The Zettabyte Age

The term "zetta" has long been used in the metric system to represent a number that is equal to 10 to the power of 21. Exactly when "zettabyte" began to be used is difficult to determine, but networking and storage OEMs first began to tout the term a few years ago. In 2008, for example, Cisco announced what it said was the coming "zettabyte era" when it said video applications would begin to see wide-scale demand, especially for enterprise applications. The previous year, IDC published a white paper with EMC in which it used the term zettabyte to describe the magnitude of data created worldwide associated with managing growing demand for VoIP and high-resolution image file transfers and video applications. Since then, data generation and storage needs have exploded as analysts and OEMs predicted, and this year, all data created should largely surpass the zettabyte mark.

Key Points

- New storage media and optical networking technologies will help to usher in the zettabyte data age.
- File management and data analysis systems are critical as the amount of data created explodes.
- Companies that can better handle and manage the deluge of data will see significant competitive advantages.

However, it will probably be decades, if ever, before small to midsized enterprises will have to worry about managing individual zettabyte-sized networks. According to HP, it will be about five years before single servers will have petabyte capacities (1,000TB), and even data centers with 100 servers with petabyte capacities will still fall far short of anything close to the zettabyte mark. "I don't think any of these guys working in IT are going to have to plan for [zettabyte] scales of operation during their careers," says Roger Kay, founder and president of the analyst firm Endpoint Technologies Associates.

Still, even when measured in petabytes, SMEs should more aggressively begin to prepare for the day when they will have to manage quantities of data that might have been inconceivable just a few years ago, says Rob Enderle, principal analyst for the Enderle Group. "If the organization doesn't get its arms around the problem before the amount of data becomes totally unmanageable, they, and the effort, are likely to be outsourced to someone who can," Enderle says. "In the end, however, a firm's success is tied to its ability to more effectively (than its competitors) get access to and use the resources it has available, [and] a major resource is the information it has created."

Technology Advances

New storage media technologies are slated for production in a few years that will be able to handle multiple-petabyte levels of information at enterprises and zettabyte-scale computing needs on an industry-wide basis.

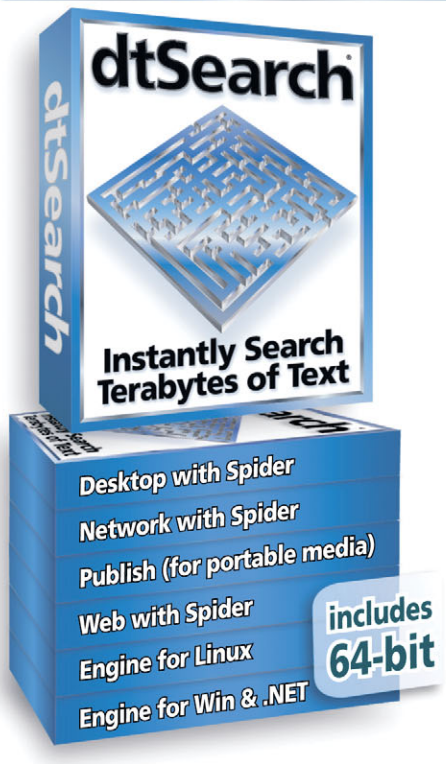
Two major developments in the prototype stage that will likely help to pave the way for zettabyte data in the coming years are non-binary storage devices called memristors and optical networks, says Paul Congdon, a chief technologist and fellow at HP. With memristors, data no longer has to be stored in a binary format, thus unlocking many of the capacity restraints of today's media.

With optical networks, photonics will replace electronic signals as data is transported by signals that travel at the speed of light with less power and cooling required thanks to the lower-power optical signals. "Optics are easier to cool, and there will be unlimited bandwidth that is just beginning to be tapped," Congdon says. "We are going to start to turn the trends on their head with storage technologies because costs are going to go down and densities and [speeds] will go up so much." P

How Big Is A Zettabyte File?

A total of 1 billion terabytes equals a single zettabyte. To put the size of a zettabyte into perspective, analyst firm IDC says that the amount of data generated last year totaled 800,000 petabytes (a petabyte is a million gigabytes), which is the equivalent to a stack of DVDs that can extend from the earth to the moon and back. The total amount of data created in 2020 is predicted to be 35 zettabytes, represented by a stack of DVDs reaching halfway to Mars, IDC says.

Instantly Search Terabytes of Text



- Built-in file parsers and converters highlight hits in popular file types
- 25+ full-text and fielded data search options
- Spider supports static and dynamic web data; highlights hits with links, formatting and images intact
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Content extraction only licenses also available

"Bottom line: dtSearch manages a terabyte of text in a single index and returns results in less than a second" — *InfoWorld*

dtSearch "covers all data sources … powerful Web-based engines" — *eWEEK*

"Lightning fast ... performance was unmatched by any other product" — *Redmond Magazine*

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The Smart Choice for Text Retrieval® since 1991

3PAR InForm Management Console NEW PRODUCT

by Kris Glaser Brambila

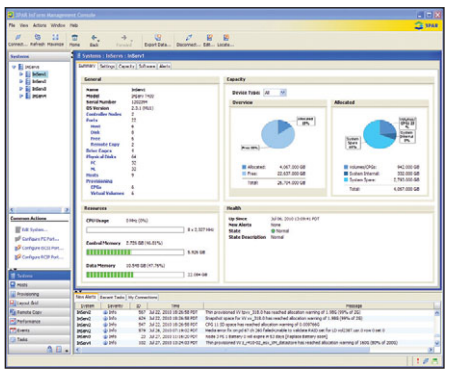
Give Storage Management A Boost

Like most data center practices, storage management can be a challenge without the right tools and expertise. There's good news. 3PAR's InForm® Management Console can add simplicity, usability, and visibility to your company's storage management practices.

The InForm Management Console lets you oversee all your 3PAR InServ Storage Servers, regardless of model, from a single management window.

Integrated with the 3PAR InForm Operating System and other applications such as Thin Provisioning, Virtual Copy, and Dynamic Optimization, the InForm Management Console offers autonomic disaster recovery configuration, so even multisite, multimode replication can be set up and tested in minutes. The console also lets you configure remote replication with high-end and midrange 3PAR arrays to lower replication hardware costs.

According to Vish Mulchand, director of software product marketing at 3PAR, one of the main reasons that companies choose 3PAR Utility Storage is for the platform's ease of use. "While the majority of 3PAR's customers are large enterprises, data-intensive small and medium [-sized] businesses that aspire to become a large enterprise will find that the InForm Management Console gives them the ability to administer storage simply and efficiently, even if they don't have the size of staff or expertise that is commonly found in larger companies," he says.



3PAR InForm Management Console

Manage all of your company's 3PAR InServ Storage Servers from a single, easy-to-use management window.

Mulchand says the InForm Management Console is different from other storage management products because it lets you configure and test disaster recovery in less than 10 minutes, get an instant picture of your capacity allocation on all 3PAR arrays in just seconds, and access detailed data more quickly and easily than other platforms—all from one window.

3PAR Serving Information

(888) 372-7226
www.3PAR.com

SECURITY PRODUCT SPOTLIGHT

Antivirus Appliances

Product	Barracuda Spam & Virus Firewall	Barracuda Web Application Firewall	Cisco IronPort C-Series Email Security Appliance
Description	The versatile, do-it-all Spam & Virus Firewall appliance from Barracuda Networks uses a multilayer approach to content filtering, with three layers dedicated to virus blocking alone. The Spam & Virus Firewall alleviates strain on the network and mail servers by winnowing out unwanted content ahead of time. • Supports up to 100,000 users with per-user customer filtering policies • Available in eight models • Speeds up recipient verification in Exchange and Domino environments • Protects against phishing and DoS attacks • Updates are provided by Barracuda Central, a 24/7 security operations center that continuously monitors and blocks the latest Web-based threats **Best For:** Enterprises, midmarket organizations, and service providers. **Price:** Starts at $699 with no per-user or other licensing fees	The Barracuda Web Application Firewall brings comprehensive security functions into a single enclosure. It's capable of stopping hack attempts, outgoing data theft, digital vandalism, DoS attacks, and more. Barracuda claims that its Web Application Firewall not only safeguards Web applications and services but can also stabilize them and improve their performance. • Supports SSL acceleration and offloading plus secure HTTP • Intuitive interface • Supports granular policymaking • Load balancing • Fights against such threats as cross-site scripting, SQL injection flaws, OS command injections, site reconnaissance, session hijacking, application denial of service, malicious probes and crawlers, cookie or session tampering, path traversal, and information leakage. **Best For:** Enterprises, midmarket organizations, and service providers. **Price:** Starts at $4,999 with no per-user or other licensing fees	The IronPort C-Series Email Security Appliance line from Cisco provides advanced threat prevention, spam and virus blocking, and corporate email policy enforcement, as well as phishing protection. Models range from the affordable C160 for SMEs to the high-end C670 for ISPs and large enterprises. • Shares the same code base with Cisco IronPort's top models • Provides mail system perspective as it frees up IT staff • Features centralized management and an intuitive GUI • Protects from spam with IronPort Reputation Filters and IronPort Anti-Spam • Enforces policies with content filters and IronPort email encryption • Uses antivirus software from Sophos and McAfee **Best For:** Enterprises of all sizes that need reliable spam and virus protection. **Price:** Starts at $7,000

Product	Panda GateDefender Performa	SonicWall NSA 3500	Sophos Email Security & Data Protection
Description	The GateDefender Performa from Panda is a family of all-in-one secure content management appliances that delivers high-performance Web filtering and perimeter protection against Internet-borne malware and spam. The company says that HTTPS scanning will become available in the next version. • IM/P2P application and content filtering • Scans commonly used HTTP, FTP, SMTP, IMAP4, and NNTP Internet protocols • Profile-based user policies integrate directly with LDAP and Active Directory • Secure quarantine for malware, inappropriate content, and spam • Low resource consumption improves performance and usability • Prevents loss of traffic in the event of failures or incidents **Best For:** Enterprises of all sizes. **Price:** Starts at $1,899	The SonicWall NSA 3500 is a fully integrated deep packet inspection firewall that's designed for speed and easy deployment. It's outfitted with file and content inspection, application intelligence, and intrusion prevention features. SonicWall designed it to accommodate a variety of configurations and advanced networking needs, the company says. • Quad-core processing power • Six 10/100/1000 Gigabit Ethernet ports • Includes gateway antivirus, antispyware, intrusion prevention, and application intelligence for perimeter and internal protection • Features multi-WAN support, ISP failover, and WAN load balancing **Best For:** SMEs, distributed environments, and branch offices. **Price:** $3,395	Featuring tough security software that's housed in a Sophos Email Appliance, the Email Security & Data Protection solution from Sophos provides anti-malware with a bit of muscle. The system protects the entire email infrastructure—from gateway to workgroup—from spam, phishing, malware, and unwanted applications. • Innovative spam, DLP, and phishing protection • Includes Sophos' Behavioral Genotype malware engine to protect against even zero-day threats • SPX data encryption • 24/7 tech support • Appliances available for up to 550,000 messages per hour • Updates automatically as frequently as every five minutes **Best For:** Enterprises of all sizes. **Price:** $27.25 per user (one year, 500 users); appliance sold separately (75-user minimum)

Processor's Product Spotlight highlights options available in key data center product categories, providing product information side-by-side for easy comparison.

Compiled by Marty Sems

Fortinet FortiGate-200B-POE

Performance, purpose-built processors, and a paucity of per-user pricing are the points to ponder with this PoE (Power over Ethernet)-capable gateway. The FortiGate-200B-POE can handle up to 500,000 concurrent sessions. It also boasts firewall throughput of up to 5Gbps, eight Gigabit ports (four of which are hardware-accelerated), and eight powered 100Mbps ports.

- Power over Ethernet support for up to eight WAPs
- Security zones by devices, access methods, users, and entire departments
- Modular interfaces
- Antivirus throughput of up to 95Mbps
- Consolidates multiple standalone security tools, providing lower operating and capital costs
- Integrates wired and wireless security policies to improve policy compliance

Best For: Small and midsized enterprises.

Price: $3,495

Fortinet FortiWeb-1000B

The FortiWeb-1000B Web security appliance from Fortinet supports XML security enforcement as well as server load balancing and app acceleration. The FortiWeb-1000B also speeds up deployment of Web applications, Fortinet says, while protecting data privacy and facilitating regulatory, HTTP RFC, and PCI DSS 6.5/6.6 compliance.

- Supports up to 22,000 transactions per second
- Four copper Gigabit ports
- Independent SSL and XML encryption co-processing
- Supports up to 2TB hard drive (1TB included)
- Protects from cross-site scripting, SQL injection, buffer overflows, file inclusion, denial of service, cookie poisoning, and schema poisoning

Best For: Midsized and large enterprises, SaaS providers, and ASPs.

Price: $19,995

Panda GateDefender Integra SB

Panda says that its GateDefender Integra SB is a unified perimeter security device that's easy to install. Right off the bat, it starts to provide protection for small and branch offices against a variety of threats, both network-level and content-based, through a single, simple interface.

- Provides firewall, IPS, and VPN services
- 400Mbps firewall throughput
- Protection modules include Anti-Malware, Content Filter, and Web Filtering
- Rules and fingerprints are automatically updated every 90 minutes for malware, IPS, and Web filtering and every minute for spam
- Real-time monitoring and graphic reports on protection activity
- Offers optimum performance without negatively affecting network speed
- Provides complete graphical reports on detection of spam, viruses, and any inappropriate content it blocks

Best For: Small businesses with fewer than 50 users.

Price: $1,899

Sophos Web Security & Control

The Sophos Web Security & Control offering is an antispyware and antivirus gatekeeper as well as a network policy enforcer and intelligent data loss prevention tool. Like the company's Email Security & Data Protection Appliance, this hardware solution brings Sophos' Behavioral Genotype engine to bear on malware of all kinds.

- Can filter encrypted HTTPS traffic
- URL filtering policy wizard lets admins restrict employees from accessing risky sites and blocks millions of infected sites across all categories
- Blocks the use of anonymizing proxy servers to bypass security
- Flexible deployment options such as explicit proxy, WCCP, and transparent mode
- Features an intuitive Web-based console

Best For: Large enterprises, smaller organizations, and branch offices.

Price: $27.50 per user (one year, 500 users); appliance sold separately

Vircom modusGate m100

The modusGate m100 from Vircom is an inbound and outbound email scanner that can detect zero-day threats thanks to its Sequential Content Analyzer feature and continual antivirus/antispam updates. It can scale to the needs of up to 1,000 users and any number of domains.

- Capacity of up to 4 million daily messages
- Dual Gigabit Ethernet connectivity
- Windows 2003 Server and SQL Server 2005 Express
- Compact 1U mini form factor
- Offers advanced reporting, compliance tools, an intuitive interface, high performance, granular security, and access control for inbound and outbound messages
- Integrates seamlessly with Microsoft Exchange, Lotus Domino, and Novell Groupwise

Best For: Small to midsized enterprises and ISP and email services.

Price: Starts at $4,180

Vircom modusGate m150

The Vircom modusGate m150 antivirus and antispam device can extend its coverage to up to 2,500 users and unlimited domains. It's capable of working with network loads of up to 5 million messages on a given day. The appliance is easy to install, configure, and use; most installations can be completed in less than 10 minutes, the company says.

- Powered by a 1.8GHz Intel Core 2 Duo 4300 processor
- RAID 1 storage drive mirroring
- Features three levels of granularity for maximum customization of user and administrative settings
- Complete inbound and outbound email scanning
- Real-time spam and virus definition updates require no involvement on the part of the user

Best For: Midsized enterprises, small to medium-sized ISPs, and hosting and mail service providers.

Price: Starts at $5,045 including Windows Server license and 50-user Vircom modusGate software license

News

NIST Outlines Security Guidelines For Virtualization

A recent guide released by the NIST (National Institute of Standards and Technology) reported that security concerns associated with the implementation of full virtualization can be offset.

The report, "Guide to Security for Full Virtualization Technologies," provides suggestions to counteract virtualization security issues in order to garner the benefits such as increased operational efficiency.

Because virtualization adds layers of technology, the security risk increases, thus creating the need for additional security controls, according to the report.

Additionally, combining many systems onto a single physical computer could be problematic if a security compromise occurs. Security threats are also caused because some systems make it easy to share information between them. If not carefully controlled, this convenience could turn into an attack vector.

To offset the risks brought about by full virtualization, the report suggests taking precautions such as securing all elements of the solution and maintaining its security. Because full virtualization relies on more than one element, overall security is dependent on the security of each component, including the hypervisor, host OS, and guest OS.

Stay Protected

Tim Grance, the program manager for cyber and network security at NIST, says that to stay protected, organizations should keep all software up-to-date with security patches and use antivirus software, firewalls, and any other usual defense mechanisms.

The report also explains that, as a general rule, "organizations should have the same security controls in place for virtualized operating systems as they have for the same operating systems running directly on hardware." Additionally, organizations should restrict and protect administrator access so only the appropriate management personnel are controlling the hypervisor and performing administrative actions.

Murugiah Souppaya, a senior computer scientist at NIST and one of the guide's authors, says organizations also need to consider the hypervisor. "It's really critical to secure the hypervisor," he says. "In a way, it's replacing that physical layer we used to have in a traditional data center." The NIST guide explains the hypervisor can be protected by installing available updates and disabling unused virtual hardware and unneeded hypervisor services.

The report also recommends that security be taken into account during the planning process, as security should become part of the solution before installing, configuring, or deploying it.

Though security issues are present, Grance says that implementing these proactive solutions to offset the risks is feasible, and overall, "the rewards [of virtualization] are great."

by Amanda Bouc

SECURITY

Tracking File Movement

Take Measures To Protect Enterprise Information

by Jean Thilmany

• • •

Do you know whether files are leaving your enterprise? Can you track file movement? If not, you're not alone, but you'll want to consider stepping up security measures to protect vital enterprise information.

More than 70% of IT executives have no visibility into files moving out of their enterprise, according to a recent study by Ipswitch (www.ipswitch.com). In addition, 64% say they have no visibility into files moving inside the enterprise.

"Those numbers point to the lack of visibility companies have into file movement," says Frank Kenney, vice president of global strategy at Ipswitch. "You can have filters and rules in place from the data center and application perspective so you can track everything, but then your human knowledge workers can [mess] that up."

USB flash drives, removable disk drives, and cell phones are making it easier than ever for employees who need to transfer large files, and harder than ever for companies to monitor and protect sensitive information, he adds.

About 90% of survey respondents admit to using thumb drives or other external devices to move work-related files, Kenney says. What's more, the prevalence of Internet-based email programs lets employees simply email large work files to their private email accounts when they want to work on files from home, says Ben Mitchell, product manager at Cisco (www.cisco.com).

It goes without saying that unmonitored file movement may mean important enterprise information could be involuntarily, or even voluntarily, leaked. IT managers need to make it easier for people in their organization to move information securely without resorting to these measures, Kenney says. By decreasing reliance on transferring physical media and focusing more on easy-to-use browser-based or email plug-in solutions, information will be better governed, Kenney says.

File Exchange Policy

"We recommend companies take a fresh look at how they allow knowledge workers to exchange information and collaborate and do the things those workers need to do to be productive," Kenney says. "If I need to send a large file and [the] Exchange service environment doesn't allow it, I'll send it via email or do peer-to-peer using Google Talk or some other type of capability," Kenney says.

Key Points

- The ever-changing pace of social media and email programs makes file sharing easier than ever—and makes it easier for secure files to leave the enterprise.
- To secure files, IT managers will need to monitor email and may want to make firewall and email improvements.
- Enterprises will likely need to let employees access some types of social media sites; simply restricting all types of file-transfer opportunities won't work.

"Companies need to be aware of how they are sharing info to be productive, set some kinds of policies and standards around how those users are doing that, and give technologies and services to those workers that can be fully monitored and managed," he adds.

He recommends IT managers investigate services such as those that let employees upload files to a secure server. Files can then be accessed via password. Companies that offer these services allow for hosting the files on their servers or on the enterprise servers.

IT managers should also look at the upgraded firewall options available today that let enterprises customize firewall protections, says Howard Ting, director of marketing for Palo Alto Networks (www.paloaltonetworks.com).

"There are so many different ways stuff can leak out of the enterprise that the most important thing is for enterprises to get visibility into those roads out of the building," Ting says. "They need to be able to put the appropriate gates and controls in place so they can see all the ways out and then block and control the ones that aren't appropriate."

Some firewall offerings now allow the IT department to specify which Internet sites and offerings enterprise staff can view. "Most firewalls used today look at ports and protocols being used and try to identify the applications viewed that way," Ting says. "That approach worked well 10 years ago when most apps used specific ports and protocols. But with HTTP as the protocol, you can't differentiate whether the user is going to ESPN to check sports scores or going to Facebook or Gmail and posting documents," Ting adds. "Today there's no way for legacy firewalls to determine the difference between these apps because they all work the same way, using the same ports and protocols."

Because some enterprises may have a legitimate need for employees to visit Facebook, it makes sense to use a firewall that lets IT set specific access to HTTP sites. Such firewalls could even be set to give access to Facebook but ensure files couldn't be transferred via the site. "You can set a policy that allows certain types of activities but prevents other types," he says.

Email Importance

IT managers must also focus on emails sent via the enterprise's email server. These emails could also contain files and information that shouldn't leave the company, Mitchell says. "Whether it's nefarious, a mistake, or user oversight, email is a means by which data that could create problems for you is sent outside the organization," Mitchell says. "And there's little visibility into that on the part of network administrators."

IT managers should ensure they have an email security product in place that gives them a view into all that traffic that enters and exists on the network and one that inspects outbound and inbound email for its content, Mitchell says. These products scan email for content via filters set by IT managers. They usually allow managers to use filters provided with the product or to create their own.

> "Whether it's nefarious, a mistake, or user oversight, email is a means by which data that could create problems for you is sent outside the organization. And there's little visibility into that on the part of network administrators."
>
> *- Cisco's Ben Mitchell*

"These identifiers can be keywords or can flag words that are in close proximity to each other. They can be quite sophisticated," Mitchell says. He notes industries that need to meet regulatory compliance mandates often need to have this type of email filter in place; their mandates require it.

The important thing to note about file protection, Ting adds, is that IT managers make decisions based on their enterprise needs. But they all must ensure file protection is in place. "Every business has to make a decision about what's appropriate, but their security products do need to be flexible and able to provide protection at the granular level needed for that business," Ting says. P

Document Access

To add another layer of protection and keep documents secure, IT managers might investigate implementing document management software, says Danny Johnson, marketing manager at Netdocuments (www.netdocuments.com). This type of software lets IT managers grant access only to employees who need the document. Although those employees can access the documents anywhere, the software tracks document history, changes, and version.

SECURITY

HOW TO

Secure Your Virtualized Infrastructure

The Tools & Processes You Need

by Holly Dolezalek

• • •

Whether it's physical infrastructure or virtual, the same security concerns apply. Viruses, bots, worms, and other malware can enter the network by way of a virtual connection, just as they can through a physical machine, and employees can create accidental or purposeful data breaches. But although the worries are the same, there are security issues that are particular to the virtual world. Here are some tips for keeping your virtualized infrastructure secure.

Keep Track Of It All

Security isn't necessarily different with virtual machines. "Many of the same security approaches that organizations have in place for their standard 'physical' servers will also protect virtual servers," says Slavik Markovich, CTO at Sentrigo (www.sentrigo.com). "For example, your firewall is not significantly affected by virtualization of the servers behind it."

It isn't so different, but it is much more of a moving target. A user who accesses his desktop from the road via a virtual connection might log in three times a day and get a clean image each time, compared to a user in the office who logs in once. And changing capacity requirements mean that virtual machines of all types come and go more frequently than their "real" counterparts.

That same dynamic nature can be confounding for certain types of security tools. Those that rely on stable configurations, such as specific IP addresses, won't be able to handle the chaotic world of virtual machines.

"This dynamic nature is also one of the main pitfalls," explains Eitan Bremler, product marketing manager for virtualization at Radware (www.radware.com). "If a virtual data center is left unchecked, the virtual machine count can skyrocket, and the IT manager can lose track of all the virtual machines which have been provisioned—where they are located and what they are running."

Without knowing that count, for example, it's very difficult to have any idea which machines have been hardened and patched and which ones haven't. It's easy to remember to patch a server you're looking at in the data center, but it's also easy to forget the 20 virtual servers on that server. "They may be running older versions of software, and unless you are keeping up-to-date on all the images that could potentially be provisioned, there may very well be exploitable vulnerabilities in those environments," Markovich says. "Make sure you are keeping an accurate inventory of every piece of software in use."

But there's also another level of complexity that demands your attention with virtual machines: reverting to previous snapshots. For example, just like a physical server, it may be necessary to revert to a previous snapshot of a virtual server. The problem with that, explains Bob De Kousemaeker, product manager for RES Software (www.ressoftware.com), is that unless that snapshot has been patched, you may be returning that virtual server to a condition where it has vulnerabilities it didn't have before. "That snapshotting functionality is very useful, but it can create a new problem of how to keep all servers at the same patch level when they're all at different snapshot levels," De Kousemaeker says.

Out Of Network, Out Of Mind

Another important consideration is what happens when you have virtualized machines on a network. Those machines aren't necessarily invisible, but they talk to other parts of the network in a different way. Markovich gives the example of an HR database that stores employee Social Security numbers for payroll purposes. "If every time a new virtual machine is provisioned for these databases someone needs to add that new 'server' to a monitoring list, it will never be up-to-date," he says. "A better approach would be a system that relies on distributed sensors that are provisioned with the database automatically and then immediately begin protecting the data without any management intervention."

Or, consider an order entry system that stores credit card numbers with each purchase. Normally, a query to access all credit card numbers would set off alerts in the network. And if you have an architecture that monitors that credit card database from the inside, rather than from the network, you won't miss this type of transaction. But if communication between applications and other services or other applications is now happening entirely within one physical machine rather than over the network, you will miss it. "The query to access all credit card numbers, which might normally set off alerts if it was issued over the network, can now be run without being seen by your monitoring server," Markovich says. "Unless you've considered this issue, you may never realize what is being missed." Many security tools rely on packet sniffing to detect threats to the network, but those tools will miss this type of traffic.

Another visibility issue is the network segmentation and provisioning that moves with the virtual machines and applications. "To avoid unanticipated holes or leakage between network segments, organizations need to pay close attention and keep track of obsolete network configurations and reclaim them when no longer needed," explains Yama Habibzai, director of product marketing for Infoblox (www.infoblox.com).

User Behavior Matters

The virtualized desktop is an incredible tool, and users will appreciate its flexibility. But the very fact that the virtualized desktop is a close but not complete copy of their actual desktop is likely to highlight whatever differences there are between the two experiences. Users will be very aware, not just of what they can do on a virtual machine but also of what they can't.

That's why you have to know how users are using the applications they access, because without that knowledge, the virtualized infrastructure you build may limit them in ways that motivates them to find ways around the security provisions you've built.

"When you add more limitations, the risk of a security breach will grow instead of shrink," De Kousemaeker says. "People always find back doors to overcome restricted environments, and they tell everyone else once they figure it out."

Tools To Consider

Many security tools that monitor physical environments have the capability of monitoring virtualized environments. But only the ones that can handle the dynamism of a virtual environment are going to keep your network secure. "Organizations need to take advantage of tools that dynamically manage inventorying, provisioning, configuration policy enforcement, and deprovisioning or reclamation of physical and virtual networking components," Habibzai says. "It's important that this be done in a topology-aware way that maps connections to virtual hosts."

Michael Maloof, CTO for TriGeo (www.trigeo.com), suggests SIEM (security information and event management) tools, which can provide real-time protection from potential threats to both the host and guest operating systems. "Network monitoring tools can probe the host OS for status and critical system information," he says. P

Key Points

- Keep close track of the virtual machines on your network, as virtual environments can get out of control fast.
- Make sure that you have a process in place so that every virtual machine on your network has the right level of patching.
- Your security tools will have to be able to handle a more dynamic environment. Tools that rely on stable configurations and fixed monitoring won't be able to monitor virtualized infrastructure properly.

TOP TIPS

- It's not just virtual desktops and servers that need careful monitoring for security concerns. Remember that virtual switches also need to be configured and monitored for compliance requirements and company standards.
- Remember your application delivery controller is affected by virtual machines. "Whenever a new virtual machine is created, it must also be configured within the ADC (application delivery controller) to ensure it is load-balanced and receives traffic," says Eitan Bremler, product marketing manager for virtualization at Radware (www.radware.com). "Similarly, whenever a new VM is provisioned, the security products should also be updated to protect the newly created applications."
- Unlike onsite and physical infrastructure, the requirements for limits on virtual infrastructure access may be more complicated. For example, unlike "real" desktops, you may need to monitor and restrict the time of day that users are able to access virtual desktops.

COURION COMPLIANCE MANAGER FOR FILE SHARES

NEW PRODUCT

by Joanna Safford

Are Your Enterprise File Shares Secure?

Controlling access to sensitive information in file share environments requires tools that let you ensure that user access to file share data is aligned with corporate security policies and industry regulations. Companies can't ignore the sensitivity of customer files, contracts, financial records, and intellectual property in the enterprise. Courion's Compliance Manager for File Shares™ can help your enterprise reduce its risks related to file shares by evaluating your file share environment, implementing controls commensurate with possible risks, and ensuring that user access conforms to least privileged access.

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The Compliance Manager for File Shares interface lets IT members review the overall risk profile of their file share environment and search for file shares, folders and files so they can view detailed information and manage the classifications and ownership of the data. The solution also lets business owners of data periodically or ad-hoc review access to file share assets and enforce least privileged access. These features combined into the easy-to-implement Compliance Manager for File Shares solution ensures you have a business-friendly suite for data access review and risk settlement.

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News

Skype Files For IPO

Skype, the video calling and instant messaging provider founded in 2003 and once owned outright by eBay, filed with the SEC for a proposed IPO of its ordinary shares, although the number of shares that will be up for grabs and the price range for the offering haven't been determined. Skype, which claims more than a half billion registered users, will seek to raise $100 million in the IPO. The company added 86 million users in the first half of this year and has garnered $116 million in adjusted EBITDA (earnings before interest, taxes, depreciation, and amortization) in this year's first six months. In its filing, Skype listed revenues for the first half of this year as $406 million, up 25% from the same period last year. Net income dropped to $13.1 million, compared to $22.5 million a year ago. As of midsummer, the company was averaging 124 million monthly free users and 8.1 million paid customers.

T-Mobile Is Tops In Customer Care

A new report from J.D. Power and Associates found that T-Mobile topped all other U.S. wireless carriers in customer care. The U.S. Wireless Customer Care Performance Study surveyed 9,690 wireless customers who contacted their carrier's customer service department during the past six months, and T-Mobile earned a ranking of 777 out of a possible 1,000 points. The industry average was 753. AT&T and Verizon Wireless finished second and third, respectively, while Sprint was last among the big four carriers. Sprint finished with a ranking of 734.

Apple iPhone Exec Leaves Company

Mark Papermaster is out, and Bob Mansfield is in as the official at Apple in charge of overseeing iPhone design and engineering. This follows the problems that accompanied the introduction of the latest iPhone hardware. Apple's perceived breakthrough of running

the phone's antenna around the exterior of the device turned sour when owners, after touching a certain spot on the phone when calling, reportedly suffered poor reception or lost calls. Papermaster has worked for Apple since 2008 and came from IBM. After leaving IBM, the company sued Papermaster to prevent him from joining Apple, citing a noncompete agreement.

Finger Smudges On Touchscreens Pose Security Risk

The residue your fingers leave on touchscreen devices can help a thief deduce your passwords, according to a paper titled "Smudge Attacks on Smartphone Touch Screens" presented by researchers from the University of Pennsylvania at the 4th Usenix WOOT (Workshop on Offensive Technologies) conference. The researchers looked specifically at a pair of Android phones, the HTC G1 and HTC Nexus 1. Using various photography techniques, the researchers were able to see a complete smudge pattern 68% of the time and could at least partially identify one 96% of the time.

MESSAGING & TELEPHONY

HOW TO

Move From A PBX Environment To VoIP

Out With The Old, In With The New

by Elizabeth Millard

• • •

With VoIP now in full maturation, it's not surprising that many enterprises are making the switch from their PBX environments. In many cases, the changeover can be nearly seamless and nowhere near as difficult as other major changes. Here are some issues and strategies to keep in mind when making the switch.

Knowing When It's Time

Whether an enterprise is deciding between an in-house system (sometimes called IP PBX) or a hosted VoIP service, the same question will come up for both scenarios: How do you know when it's time to make the move?

Sometimes, there's what experts call a "triggering event" that prompts the change, such as a move to another facility or a breakdown of older equipment. If the existing phone system is unreliable or costly to maintain, it may prompt an upgrade to VoIP, and another reason might be better functionality for teleworkers. Understanding the reason for the switch can help to ease the process of implementing a new system, and often, it's simply a matter of being cost-effective.

> Aside from a good training plan, a solid data network infrastructure is necessary, and it must be ready to support voice.

"If the company is looking to decrease their operational expenses, there are huge efficiencies and cost savings to be gained by unifying the voice and data network and delivering VoIP applications to drive productivity," says Eric LeBow, vice president of professional services at Spanlink Communications (www.spanlink.com).

In terms of whether to choose a hosted system, the answer again depends on requirements, notes Eric Ramsden, product manager at TalkSwitch (www.talkswitch.com), a provider of phone systems for small businesses. Many people who choose hosting pick that strategy because of lower up-front costs and less maintenance of a phone system.

"If they already have a phone system, then the only real reason to switch might be to lower administrative costs if they are always having to get a VAR in to make changes or reduce short-term replacement costs if the existing system needs to be replaced," he says, adding that in his opinion, hosted systems tend to be much more expensive.

Knowing the objective is vital, because it makes choosing the right system for the company easier, says Tristan Barnum, director of product marketing for Switchvox at phone system provider Digium (www.digium.com). He says, "If you really need something that integrates with your ERP system, for example, then that will narrow down your choices quickly so that you can start comparing available systems without wasting time wading through IP PBXs that don't have the capability."

First Steps

The technology is the easy part of a move to VoIP, LeBow believes: "It's a very mature technology that works well and is very feature-rich." The primary consideration before making the switch is to think about the impact it will have on employees, he says. Companies should ensure that employees receive proper training and that support systems are in place.

Aside from a good training plan, a solid data network infrastructure is necessary, and it must be ready to support voice. LeBow notes that most good systems integrators can help a company validate the network and make recommendations.

A local area network assessment should be performed, and network switches should be manageable and provide power over Ethernet, adds Howard Hoffman, director of premise-based IP telephony for Evolve IP (www.evolveip.net).

Also, ensure that there's a data jack everywhere a VoIP line will be placed, advises Louis Hayner, CSO at communications firm Alteva (www.altevatel.com). "With VoIP, it's important to have an RJ-35 or data jack wherever a phone will be, including the lobby, kitchen, and other common areas," he says.

"You should also be sure the right cabling is in place before implementation and hardware is ordered and received and that you provide phone bills to the provider when numbers are going to be ported," Hayner adds.

Avoid The Missteps

Although it might be tempting to do a rip-and-replace with all the phone systems, LeBow advises a phased approach, including running a pilot system for testing. He says, "A pilot is a low-cost, low-risk approach that can be used to ensure that the features of the solution meet the business need."

Also, he adds, companies sometimes project VoIP costs of hardware and software, but that won't give enterprises the correct numbers, LeBow notes. About 80% of the cost of VoIP solutions comes from operating and maintaining the system after implementation, so IT managers need to make sure they consider that when securing a budget, and find a reputable solutions integrator that can help keep operating expenses low in the long-term.

Hoffman notes that IT managers should scrutinize vendors carefully: "There are many more 'basement VoIP operations' than in the traditional telephony marketplace." He recommends that managers look at the financial stability of the vendors, check references, and look at complaint sites online.

Cutting corners on phones is another mistake, Barnum says. Keeping old phones in place might seem like a great way to save money, but it can affect an entire company's perception of the new IP phone system.

Finally, a very common misstep is to "go it alone," he adds: "Many of the new IP PBX systems available are very easy to use and set up—especially when compared to an old traditional system—but that doesn't mean you'll want to be the one troubleshooting network problems at 2 a.m. while trying to cut over to the new system." Instead, he advises that data center managers rely on companies that specialize in putting in VoIP systems and have support systems in place. P

Key Points

- Understand the reason for the switch to VoIP, whether it's a triggering event or a move toward more robust technology.
- Develop an employee training plan and keep long-term support in mind when choosing a system.
- Create a pilot project for testing a system rather than doing a "rip and replace."

TOP TIPS

- When comparing vendors, focus on security and reliability; do due diligence to make sure all security policies will be addressed and validate reliability with customer references.
- Confirm that the data infrastructure will adequately support voice now and in the future as the company grows. The data network should be viewed as the foundation, and if it doesn't scale or is unstable, the VoIP applications won't work reliably.
- Look at costs in the long-term when deciding on a provider. Project costs out at least three to five years to get a better idea of ROI.
- Don't view VoIP as just an IT project but as a way to drive business results. Ensure that business needs and objectives are documented, and tie VoIP plan and design back to the business strategy.
- If considering a hosted solution, ask questions such as: Does the service require you to buy any phones? Who pays to have the network assessment done? Who installs the phones? Are there any cancelation penalties? Do you pay per concurrent sessions or do you have to buy a certain number of lines to guarantee the number of concurrent calls permitted at the site?

FEATURED PRODUCT

Personalized Unified Communications

ADTRAN's Windows-Based VoIP Solution Delivers Customization & Expandability

by Joseph Pasquini

• • •

We live in a complex world in which access to accurate information—and the ability to communicate it in a timely fashion—plays a pivotal role in the overall viability of any business entity. In today's sometimes teetering economic climate, however, the reality is that many organizations now find themselves constantly battling an overload of often disorganized information in an effort to stay ahead of their similarly challenged competitors.

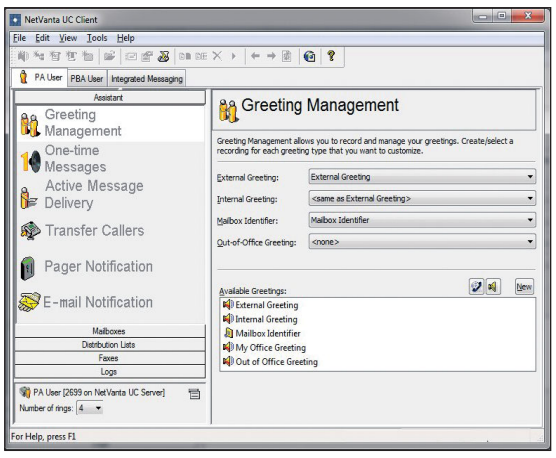
As enterprises look for ways to further streamline their strategic operations without sacrificing both productivity and customer satisfaction, one avenue worthy of investigation is that of unified communications, or UC. This evolving methodology, which integrates real-time communication services such as telephony and voicemail under one common collaborative umbrella, can remove the barriers that otherwise typically obstruct effective business communications.

To help companies keep up with and adapt to their voracious need for well-timed communications between staff and customers alike, ADTRAN (www.adtran.com) has released the latest iteration of its now well-established NetVanta Unified Communications Solution Suite.

ADTRAN has been a manufacturer of convergent networking and communications infrastructure solutions such as optical systems, security appliances, and network management devices for more than two decades. The original release of the suite in December 2009 marked ADTRAN's entrance into the UC market segment.

A Unified Solution

Collectively referred to as NetVanta UC, the suite is composed of several unique yet complementary NetVanta components, each with its own subset of interconnected functions. "These solutions are especially attractive to vertical markets, such as banking, hospitality, education, health care, retail, and real estate, due to their flexibility and rich feature set," explains Jeff Wissing, ADTRAN's senior product manager for unified communications. "NetVanta UC is perfect for SMBs of five users right up to large distributed enterprises in excess of 2,000 users."



UC Client lets users customize their communications preferences via a Windows-based interface.

In concert with its native ability to integrate telephony, voicemail, fax, and messaging across varied media, NetVanta UC allows end users to individually personalize their communications routing via an intuitive Windows-based user interface. According to Wissing, NetVanta UC can be leveraged by front-line employees to route calls to cell phones, home phones, hotel rooms, or all three. In addition, employees can also access their voicemail, email, and fax messages by phone or via personal email clients, and notification of new messages can be sent to any mobile device supporting SMS. "It personalizes communications and takes them to the next level," Wissing says.

Software & Hardware In Tandem

A team of hardware and software solutions works together to form the NetVanta Unified Communications Solution Suite. The NetVanta Unified Communications Server is a software-only, Windows-based solution targeted at organizations looking to transition to IP telephony while still leveraging their existing legacy PBX investment. Capable of scaling 2,000 or more users on a single server instance, the UC Server component supports unified communications on an assortment of dissimilar PBXes from a range of manufacturers, including ADTRAN itself. Processes supported by the UC Server platform include unified messaging, fax services, inbound and outbound IVR (Interactive Voice Response), auto-attendants, personal assistants, call redirections, and notifications. Additional features include drag-and-drop service creation and integration with Active Directory for user authentication.

Aimed at organizations interested in new or replacement IP telephony and UC installations, the NetVanta Business Communications System is a turnkey bundle built on the unified communications capabilities of ADTRAN's software-based UC Server used in conjunction with its hardware-based NetVanta 7000 Series IP PBX switch. Capable of supporting up to 100 stations per device, the 7000 Series appliances are available in two different models. The NetVanta 7060 is a compact IP-based PBX, whereas the NetVanta 7100 adds a full-function router along with a stateful inspection, SIP-aware firewall. Both models share common features, including QoS implementation, SIP trunking, multisite networking support, and a modular WAN interface for extending connectivity.

Designed to be interoperable with the NetVanta Business Communications System, ADTRAN's 700 Series of IP desktop phones features programmable buttons, distinctive ring tones, a large screen display, and Web-based management. Both six-line (IP 706) and 12-line (IP 712) versions of the phone are available.

"This hardware/software combo is a perfect solution for small to medium-sized enterprises requiring an IP-based voice system with full UC capabilities," Wissing says.

Other Tools In The NetVanta Toolbox

Leveraging the capabilities of UC Server, ADTRAN's NetVanta Enterprise Communications Server is a software-only SIP-based platform that provides enterprises with a complete IP-based voice system capable of scaling from 75 to 2,000 users in a single server instance. In addition to a completely software-based IP PBX, Enterprise Communications Server offers a further extension of UC Server's list of features. Included is an enterprise conference server that supports multiple simultaneous audio conferences, each with its own unique four-digit identification number. In addition to providing tallies on the number of conference participants, administrators can mute all participants for large one-way calls and block entrance to late conference arrivals. Besides a text-to-speech server and a fax server, an enterprise paging server is also included and supports both live and prerecorded paging.

Finally, the NetVanta Business Application Server is a graphical drag-and-drop application development environment designed to enhance an organization's UC infrastructure. This standalone application provides the tools necessary for creating custom in-house applications. ODBC (open database connectivity) database integration and UC Server's built-in personal tables are both supported.

"The NetVanta Business Application Server lets businesses produce customized communications-enabled applications that drive workforce automation, raise productivity, and improve responsiveness—all while delivering a speedy return on investment," says Wissing. "Custom applications allow businesses to tailor the system to fit their needs. A physician may use an application to route after-hours calls, while a realtor may develop [an] application that can provide a recorded greeting, fax information on request, or even route calls to a specific real estate agent." P

ADTRAN NetVanta Unified Communications Solution Suite

(800) 923-8726
www.adtran.com

Description: Product family of scalable unified communications components that integrates VoIP and legacy PBX systems within Windows-based environments.

Interesting Fact: ADTRAN's software-only management approach leverages Active Directory for centralized user administration.

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News

IT Outsourcing Still Sluggish In 2010

TPI, an outsourcing data and advisory firm, has come out with its quarterly look at the outsourcing industry for clients, service providers, analysts, and the media, and the results show that the global outsourcing industry is still in an uncertain state as a result of the continuing global economic recession.

The study, which looks at outsourcing contracts worth $25 million or more, shows that for the second quarter of 2010, TCV (total contract value) was $18.1 billion, down 13% sequentially and year over year; additionally, the TCV for the first half of 2010 remained flat year over year at $38.9 billion. The EMEA (Europe, Middle East, and Africa), Asia Pacific, and IT outsourcing markets showed particular weakness.

According to analysts, the economy is clearly the biggest culprit behind the outsourcing slowdown. "The relationship between the overall economic downturn and a downturn in outsourcing is the most critical relationship," says Mark Mayo, partner and president of TPI Global Operations. "It was not so much that companies stopped outsourcing during the downturn, but that their outsourcing initiatives were delayed during the recession for financial reasons or for lack of management focus."

Euro concerns and debt crises within the European Union caused particular problems in the hard-hit EMEA market. It is these factors, Mayo says, that "inhibit some of the recent outsourcing initiatives underway or under construction." The Asia Pacific market, which dropped 73% year over year, was hit hard because it is "measured off a smaller base" than the Americas and EMEA, Mayo says, explaining that big contracts make bigger impacts, and losing one can make a big difference.

The Road To Recovery

Mayo expects to see circumstances slowly begin to change for the remainder of 2010, with more large opportunities presenting themselves in sluggish markets. For the remainder of this year and through the next year, Mayo says, "we anticipate a modest third quarter in keeping with the historical profile for third quarters." A strong fourth quarter will often follow a weak third quarter, Mayo says, although he predicts the market will recover "slowly and unevenly."

by Patrick Kean

SERVERS

SIX QUICK TIPS

Solve Server Monitoring Problems

Challenges To Keeping An Eagle Eye On Data Center Assets

by Sixto Ortiz Jr.

• • •

Administrators must assess how their equipment is running in order to make improvements, troubleshoot problems, or budget priorities for repairs or replacements. Because servers comprise the lion's share of data center equipment, it stands to reason that server monitoring is a key area for administrators who need to keep a watchful eye on data center assets.

But, monitoring is not as simple as capturing data on a few parameters and responding to alarms when they occur. Administrators must ensure server monitoring is effective and provides relevant, useful information. A key part of this effort is mitigating problems that can arise and interfere with effective server monitoring.

Use Trending

One of the problems associated with server monitoring is that many tools provide a flood of data but not much information. Without actionable information, administrators can waste precious time attempting to separate pertinent information from "noise."

A key to solving this server monitoring problem is trending. Mark Hinkle, community vice president at Zenoss (www.zenoss.org), says administrators only using server monitoring to handle "break-fix" situations are unnecessarily affecting end users. Monitoring disk usage can point to capacity issues before outages occur, Hinkle says. For example, some monitoring solutions include trend analysis tools that use usage patterns to forecast points at which storage capacity limits are reached.

Steve Francis, founder and CEO of LogicMonitor (www.logicmonitor.com), says many systems rely solely on threshold-based monitoring and have few trending capabilities. Everything that is monitored, Francis emphasizes, should be trended. In fact, many things should be trended, without alerts, to provide information that can help resolve issues. Francis cites the example of a new application release: If application performance slows and triggers a monitoring alert, administrators should be able to assess whether the new release is causing a sudden increase in application performance, or whether the application has gradually slowed with increasing load.

Select Appropriate Monitoring

Administrators and data center personnel are well aware of the fact that monitoring tools can flood users with data. Some of this data may be useful; some may not. Another aspect to resolving this problem is not only to trend, but also to select appropriate monitoring metrics.

A big consideration for efficient and productive server management is to ensure monitoring tools only report on key indicators that provide the best information about server health, says Mike Alley, practice director for outsourcing solutions at Logicalis (www.logicalis.com). Most tools generate too many events out of the box, which can flood a monitoring console and take away focus from truly critical events, Alley says.

Good places to start, he adds, include performance metrics for CPU, memory, network, and storage. Administrators should also monitor events detected by hardware-level management products that come with a server, system log files, and system processes. Also, administrators should periodically review reported events and winnow out those that don't require remediation or have a negative impact on users. Of course, any undetected events that impact users should be reviewed, and specific indicators that detect this event should be monitored.

Kenneth Cheung, a solutions architect at Uptime Software (www.uptimesoftware.com), says it is very common to have a flood of metrics streaming out of various tools. The key is to find a monitoring solution that rapidly correlates outages and incidents to infrastructure and applications. In addition, he adds, the monitoring tool should point toward issues and/or infrastructure that require priority attention. With this capability, administrators can instantly identify which issue needs immediate attention.

Automate

A monitoring tool that doesn't use automation to streamline the alerting process can waste time by introducing manual processes that take time to complete. This can prolong an outage or make it worse.

Sending a page or other alert when a failure occurs usually results in the following chain of events: An administrator receives a page, logs on to the server, and then diagnoses the problem, Hinkle says. This process may take several minutes or longer. In many cases, he adds, the monitoring tool could be used to start a process that fixes the problem automatically. For example, he says, a monitoring tool could detect a server failure and use an automation tool to reboot the server, resulting in a faster recovery time.

"Unless your monitoring system automatically detects changes to servers, applications, and infrastructure, you don't have monitoring," says LogicMonitor's Francis. The reason is there are so many changes done to servers and systems, often in the heat of crisis, that not all changes will make it into monitoring if administrators rely on a manual process.

Best Tip:

Share The Wealth

Mark Hinkle, community vice president at Zenoss (www.zenoss.org), says administrators should share the wealth and avoid becoming the only ones who see monitoring data. For example, providing application developers with feedback showing how their products function can help them improve their applications. Showing resource utilization and other points of failure can help improve the design of hosted applications. For example, a Web application that leaks memory may work fine but negatively impacts utilization of hardware resources by increasing utilization.

Most Practical Tip:

Use Reporting

Kenneth Cheung, a solutions architect at Uptime Software (www.uptimesoftware.com), says administrators should use tools that can report and alert on all monitored data. This kind of tool can overcome the problems that arise when an event occurs and administrators are frantically fishing for problems in the infrastructure stack. A useful monitoring tool, he adds, should provide reports that facilitate ongoing initiatives across all different stacks (physical, virtual, cloud). Reporting saves time for administrators, preventing the need to run point tools to get specific metric streams and reduce the fishing needed to find application-specific, capacity-planning, or incident-prioritization issues.

Relate Monitoring To End Users

At the end of the day, the goal of server monitoring is to ensure critical business applications continue to run without problems. This means server monitoring, albeit indirectly, is related to the end-user experience.

Uptime Software's Cheung says administrators should start relating server and software metrics to end-user applications. Administrators need to have visibility into how servers are performing and how software is running on those servers, but the most important aspect is to connect those metrics to what the users care about, which is whether their applications are running. Taking an application-centric perspective, Cheung says, allows problem solvers to focus attention on what users are saying and allows for the creation of alerting and automated actions that are more relevant and targeted. P

BONUS TIPS

■ **Use mobile monitoring solutions.** Administrators should take advantage of mobile network monitoring solutions so they can keep an eye on their network at all hours, even while on the go, says Dirk Paessler, CEO of Paessler (www.paessler.com).

■ **Use Windows Management Instrumentation.** WMI is a mighty tool for system administrators to monitor and manage a Windows network from one central point, Paessler says. WMI allows administrators to start processes, read the Event Log history, and even send commands to reboot a system for all computers in a network.

DISKEEPER V-LOCITY 2

NEW PRODUCT

by Kris Glaser Brambila

Avoid The Fragmentation & Disk Space Side Effects Of Virtualization

THE NEED FOR network efficiency at a lower operating cost continues to dwell in the minds of IT managers, making many of them steer their data centers toward virtualization. But moving the entire network to a virtual environment comes with its own set of challenges. For starters, virtual machines are prone to twice as much fragmentation as their physical brethren, which can cause I/O bandwidth bottlenecks and many other performance issues. And once fragmentation has occurred, virtual disks oftentimes do not resize when excess data is deleted, leaving precious free space unused.

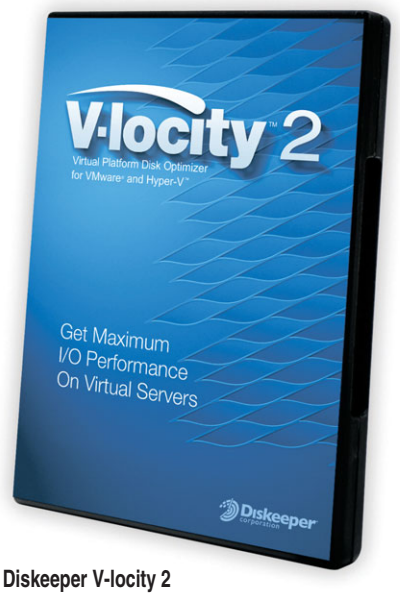
Diskeeper's V-locity 2 virtual platform disk optimizer is designed to tackle these and other side effects of virtualization. It can help prevent excessive fragmentation before it begins; free up disk space and consolidate the leftover free space; and help facilitate a faster and more efficient data center.

Defragmentation Duties

V-locity was designed to not only perform defragmentation duties, but to also synchronize the ongoing activity between the host and the various guest OSes present in the virtual environment. It works using two components: the V-locity host, which is installed on the host hypervisor; and the V-locity guest, which is installed on all Windows virtual machines.

Created for Windows 2008 servers with Hyper-V or VMware ESX servers with version 3.5 or later, V-locity operates invisibly in the background, causing no impact on active resources. The unique InvisiTasking technology automatically synchronizes resources across all current V-locity guest components and monitors CPU, memory, and other hardware bottlenecks in Windows-based virtual machines, leaving no need to schedule defragmentation sessions.

V-locity 2 has several benefits over its predecessor, the original V-locity. Foremost is its IntelliWrite technology, which can prevent up to 85% of fragmentation before it can occur. IntelliWrite writes larger sequential disk I/Os from Windows VMs to boost performance and lessening the amount of work for copy-on-write technology. Copy-on-write is designed to make block-level copies of every write that occurs on a disk, volume, or virtual disk. Ultimately, the need to defragment lessens, translating to fewer writes that need tracking and fewer I/Os used.



Diskeeper V-locity 2
A virtual platform disk optimizer that can prevent extreme fragmentation, consolidate free space left over from data deletion, and improve overall data center performance.

Virtual Disk Intelligence

V-locity 2 also features virtual disk intelligence, with which V-locity automatically detects unique virtual disk types such as Microsoft Differencing Disks or the VMware Linked Clones. These special disk types are virtual disks that store only the changes made to a linked parent virtual disk, and traditional defragmentation is not recommended. On detection, V-locity enables IntelliWrite, avoiding as much fragmentation as possible and avoiding any unwanted side effects on those special virtual disk types.

Thin and dynamic disks only grow over time, but never shrink when data is deleted. This leaves free space, or "holes," that can't be reused. V-locity 2 Virtual Disk Compaction technology can lessen the extent of this problem. Virtual Disk Compaction uses a GUI to show free space holes and translate how much storage can be gained if all the free space is combined. The GUI also features an easy one-click option to begin consolidating free space. P

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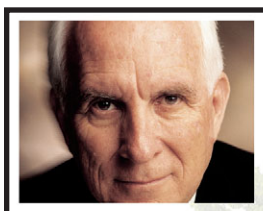
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Lee Technologies Covers Data Center Operations From A To Z

by Holly Dolezalek

• • •

BUILDING A DATA CENTER is no light undertaking, and neither is maintaining it after it's built. For Fairfax, Va.,-based Lee Technologies, doing both—and more—for clients is its bread and butter.

Lee Technologies (www.leetechnologies.com) started out in 1983 as a provider of the equipment that maintains environmental conditions in computer rooms, such as uninterruptible power supplies, generators, and air conditioners. But over the years, the company has added expertise and offerings, and today it designs, builds, maintains, operates, and monitors data centers for public sector agencies and commercial clients all over the United States.

Soup To Nuts

Mike Hagan, executive vice president of sales and marketing for Lee Technologies, explains that if Lee has a flagship product, it's the sum total of all the services the company offers. "Ours is a model that meets business requirements from the beginning of the transaction to the end of the build or to ongoing operations," Hagan says.

That model includes five types of services. The consulting division works with clients and their budgets to gather business requirements so that they can design a data center that meets the client's specifications. That includes site assessment services, such as total cost of ownership modeling, design-build feasibility studies, efficiency/PUE studies, and capacity and redundancy profiling, among others.

The company's design-build division performs needs assessment, equipment selection and specification, and other necessary services. Its equipment integration team integrates equipment with existing data centers, and its commissioning division takes care of starting up, testing, and troubleshooting new equipment. The company's National Operations Center monitors functioning equipment and stores site documentation.

Many of Lee Technologies' clients take advantage of its operations and maintenance division, which takes care of everything operational, including managing personnel, conducting training, documentation, and other ongoing data center chores. The company manages data centers either remotely or onsite.

Hagan says that of those divisions, the design-build group and the operations group drive the most revenue, accounting for about 60% of revenues overall. But the fastest-growing segment, he says, is the consulting division. "You really can't sell any of this stuff until you sit down and consult with the client as a first step," he explains.

In fact, although not every client engages Lee formally in a consulting relationship, most transactions lead to some kind of consulting. Whether formal or informal, that consulting often results in protecting clients from mistakes, Hagan says, and especially one mistake in particular: focusing on the cost to build to the exclusion of the cost to maintain. "A data center may cost millions to build, but it's key to think about ongoing maintenance costs as part of the total cost of ownership," he says. "We often have to bring maintenance into the conversation, and the ROI fails pretty quickly. That's why we look at both build and maintenance in a holistic way."

Finding The Business

Lee Technologies' clients come from two sectors. The public sector includes the Department of Defense and other government agencies as well as federal, state, and local government clients. About 30% of the company's sales force is dedicated to this sector, and many of Lee Technologies' employees have top secret or other clearances.

Government business comes from direct sales, but it also comes from the company's partnerships with major integrators that specialize in the government space but need a partner to make sure that the infrastructure is in place so that the hardware and software run right. Lee works with 10 to 20 integrators as a subcontractor to capture additional business from clients that need more than just added computing power, such as additional facility operations, redundancy, reliability, or other services.

The rest of the sales force works in the commercial space. That includes banking and finance clients and companies that are providing colocation or hosting and cloud services to their own clients.

In the near future, the commercial space is going to include new types of clients. Hagan says that the company is engaging more with clients from the healthcare and pharmaceutical space, and as computing requirements grow for those industries, that sector will only grow. But, he says, Lee is also engaging with major IT services and software providers to maintain or operate their data centers for guaranteed uptime.

Although Lee has its share of large enterprise clients, a healthy 40% of its revenues come from SMBs, and Hagan says that's not surprising. "Computing requirements are just as critical for SMBs as for larger companies, but SMBs are less likely to have internal resources to design, build, or operate a data center appropriately," he says.

Unlike many IT companies, Lee Technologies isn't pursuing international business, other than work from domestic clients—whether in the public or commercial sector—that have overseas operations. "The market space in the domestic U.S. is strong enough and large enough for us, and the needs domestically are so great that we want to stay focused and support our current clients," he says. "If you try to do too many things, it affects your reputation and your ability to deliver, and we don't want that."

Growing & Changing

Hagan says that Lee Technologies has added about 50 employees in the past 18 months and that stats about the computing space suggest growth in the days ahead, even if capital is still restricted at the moment. "Most statistics today say that there's about 15 to 17% demand but the supply is only 6%," he says. "So our niche may have slowed down, but the pent-up demand for power is significant."

One of the trends that Hagan says is affecting Lee Technologies' business is building green and, more specifically, interest on the part of clients in solutions that are both energy-efficient and cost-effective. For that reason, the company is developing innovations in mobile and modular solutions.

Mobile solutions include what Hagan calls containerized infrastructure, or platforms in 20- to 40-foot containers that include both the computing power and the infrastructure to support it, such as UPSes, generators, and air conditioning equipment. "Say if there's a hurricane, FEMA [the Federal Emergency Management Agency] might need to engage quickly in an area," Hagan explains. "So it's essentially the ability to deploy a mobile data center to that area."

Modular solutions are designs that allow a data center to be built modularly so that it meets a client's needs without being overbuilt and yet can be added on to easily in the event of expanding computing requirements down the road. "We're going to be announcing some solutions to meet those needs in the next six months," Hagan says.

Lee Technologies will also continue to focus additional sales and support on the government sector, and as always, the company has its eye out for acquisitions that would support its existing model and offerings. "That hasn't been part of our growth, but we keep our eyes and ears open," Hagan says.

LEE TECHNOLOGIES

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- Lee Technologies provides consulting, design-build, integration, and operation and maintenance services to guide data center builds from conception to completion and beyond.
- The company plans to expand its services to include mobile and modular data center solutions.
- "A data center may cost millions to build, but it's key to think about ongoing maintenance costs as part of the total cost of ownership," says Mike Hagan, executive vice president of sales and marketing for Lee Technologies.

Lee Technologies Services

CONSULTING	Total cost of ownership modeling
	Design build feasibility studies
	Operations and maintenance program qualification
	Efficiency/PUE studies
	Capacity and redundancy profiling
	Installation workmanship reviews
	Post-event evaluations
	Tier level evaluations
DESIGN-BUILD	Construction management
	Works with prequalified contractors to execute designs
	Needs assessment and audit
	Feasibility study
	Site surveys
	Design development
	Specifications development
	Equipment selection and specification
	CAD services
	Rough order of magnitude estimates
	Tier level options
	Equipment layout and electrical single-line drawings
	Conceptual design assessment
INTEGRATION	Design and systems evaluation
	Management, engineering, and technical development and support
	Quality assurance
	Reliability, availability, maintainability analysis, and related studies
	Equipment recommendations and procurement
	Factory witness tests
	Coordination and installation support
	Regulatory compliance assurance and management support

Moving Beyond WinXP SP2

Prepare For The End Of WinXP Support

by Sue Hildreth

• • •

According to a survey by SoftChoice, 77% of organizations have more than 10% of their computers running WinXP Service Pack 2. If your company is among that 77%, Windows experts and IT analysts have one word of advice for you: Upgrade.

Microsoft stopped supporting the WinXP SP2 platform this July, meaning no more updates and no more patches of any kind. Although it is possible to continue using WinXP SP2, the risks to the organization using an unsupported platform will grow higher every day. Given that WinXP is a widely used operating system that was already a high-profile target for hackers and virus writers, WinXP SP2 will likely attract even more attention from malware makers now that Microsoft won't be issuing patches to plug newly discovered holes. That makes it an unacceptable business risk, say many IT analysts.

> "The majority of our customers opted to skip Vista, but the early impression of Windows 7 has been favorable, so for most organizations it's a question not of whether they'll go to Windows 7, but when."
>
> *- SoftChoice's Dean Williams*

"I can't see anyone being comfortable staying on SP2. It's like leaving the house with your back door open," says Donald French, Windows consultant and founder of the technical consulting and training firm Institute for Advanced Professional Studies (www.iaps.com). "Maybe you'll be lucky, or someone unwanted might come into the house."

But whether that will prod IT managers into a quick upgrade to WinXP SP3 or Win7 remains to be seen. Microsoft gave users plenty of warning that it would end support for SP2, but according to SoftChoice (www.softchoice.com), nearly half of all U.S. desktops in businesses were still running SP2 in May 2010.

"We don't believe it's a case of customers avoiding deployment, but more of them not knowing that they haven't deployed SP3," explains Dean Williams, the services development manager for SoftChoice. Williams says most of SoftChoice's corporate clients now have some sort of plan for moving to Win7, either now or in a year or two.

"The majority of our customers opted to skip Vista, but the early impression of Windows 7 has been favorable, so for most organizations it's a question not of whether they'll go to Windows 7, but when," he says.

Stretch The Life Of Your WinXP License

Ultimately, most businesses will need to move to Win7. But there's not necessarily any reason to rush, if the performance enhancements of Win7 aren't needed right now. To get more value out of the WinXP licenses that organizations already own, upgrading to SP3 is a logical interim platform that will continue to get Microsoft support until April of 2014. That's a breathing space of 43 months that IT managers can use to prepare their systems, and their budgets, for the move to Win7.

"By moving to SP3, you're extending the practical life of your XP system. If your current system meets your computing requirements, I would continue to use XP unless there's a compelling reason not to," says IAPS' French, noting that his institute plans to stay with WinXP for another 18 months. "That doesn't mean that you shouldn't be getting a PC with Windows 7 and testing its compatibility with applications and peripherals." Microsoft provides utilities for users to check whether their applications, peripherals, and PC hardware will support Win7.

A second reason for migrating first to SP3 is it enables standardization of disparate WinXP desktops, each with a different collection of patches and updates, onto a single, consistent version of WinXP. That will in turn greatly speed the eventual migration of those same desktops up to Win7.

"If all of the desktops are running the same revisions of the software, then once you've learned what the problems are with [upgrading] one computer, converting another 10 computers does not take any more time," French says.

Going Straight To Win7

Of course, going to WinXP SP3 also adds another step into the eventual upgrade to Win7, which most organizations will do, unless they're planning to move to Linux or some other platform, because WinXP will no longer be supported via Microsoft's Extended Support program after April 8, 2014, a grace period of more than three and a half years.

Although that's a pretty long grace period, it is, nonetheless, the end of the line for WinXP as a platform, and IT managers need to start planning for life beyond WinXP, says Al Gillen, program vice president, system software with IT research and analyst firm IDC. "The time has come for organizations to start thinking about how they will replace XP, not extend its life cycle."

SoftChoice's Williams suggests companies that already paid for a Win7 license, in order to test the compatibility of hardware and software, consider moving ahead more aggressively rather than dragging it out to the end of WinXP. "SP3 is really just a stay of execution," Williams says, "so if an organization already owns a license to Windows 7, they might give strong consideration [to] a move to Windows 7."

SoftChoice conducted a survey last fall that found nine out of 10 computers in the average corporate environment could support Win7's minimal optimal requirements. That means that most companies can avoid replacing all of their desktop hardware, unless it's very old.

Moving to Win7 also provides access to newer versions of desktop apps that may have useful features, notes David Sengupta, an analyst with Ferris Research (www.ferris.com), which follows the email and collaborative software markets. "To save costs, they can do a staged migration, focusing on 'power users' initially and then upgrading the rest of the organization; however, the cost of doing so would be extended coexistence of different document types (for example .doc, .docx). Some of this can be mitigated by ensuring the newer PCs save to the older document type," Sengupta says.

The decision to go directly to Win7 or move first to WinXP SP3 will depend on the amount of hardware upgrading that needs to be done, how badly the users need the features in Win7, and the budget available for migration. But unless an organization has no funds or manpower to spare for even a small upgrade, the only choice that's not on the table is staying with SP2. P

Key Points

- Organizations using WinXP SP2 can upgrade to Win7 or WinXP SP3, and moving to SP3 extends the practical life of your existing WinXP investments.
- After 2014, everyone should be on Win7 or a non-Microsoft OS.
- A survey by SoftChoice found that nine out of 10 computers in the average corporate environment can support Win7.

Windows 7 System Requirements

Here are the minimum requirements to run Windows 7, according to Microsoft.

- 1GHz or faster 32-bit (x86) or 64-bit (x64) processor
- 1GB RAM (32-bit) or 2GB RAM (64-bit)
- 16GB available hard drive space (32-bit) or 20GB (64-bit)
- DirectX 9 graphics device with WDDM 1.0 or higher driver

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NEW PRODUCT

by Joanna Safford

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News

Gartner Releases Cloud Computing Bill Of Rights

Cloud computing is growing, but many enterprises don't know what their rights are. That's one of the reasons Gartner's Global IT Council for Cloud Services created the Rights and Responsibilities for Cloud Computing Services. The list features seven important points for cloud users.

"The driving factor is the issue that the biggest problems in cloud computing are going almost completely unaddressed," says Daryl Plummer, a Gartner fellow and managing vice president. "While the world screams 'what about security,' they often fail to realize that the biggest problems are regarding trust." Plummer says users need to be educated in some way because the cloud service providers have been notably silent.

Gartner's list includes the right to retain ownership, use, and control of one's own data; the right to service-level agreements that address liabilities, remediation, and business outcomes; and the responsibility to understand and adhere to software license requirements. Each point covers a different concern of cloud computing with the intent that users will recognize the risks and be more proactive in protecting their personal information in the cloud. Plummer says the first "right" stands above the rest because it "is at the heart of intellectual property law."

"If you place your data into a cloud service, for example, and the cloud provider goes out of business but sells its assets to another cloud provider before doing so, have they sold property that didn't belong to them? Will they sell your data as part of their assets? There is no contract I have seen that specifies that they won't," Plummer says. He believes contract negotiations and overall transparency are important because enterprises are putting important information in the cloud and need to know what is being done with it.

Understanding & Trust

The Rights and Responsibilities for Cloud Computing Services tries to offer cloud users an understanding of what they should be aware of when choosing and maintaining their cloud computing services. Some analysts believe there needs to be a change in how people think of the cloud as well as a change in how cloud providers outline their services for customers.

"The cloud emphasizes risks due to the lack of consumer control and the need for cloud providers to deliver the same service to the massive numbers of consumer the same way. It is difficult for them to treat each customer differently, so this introduces risks to those customers who simply have to trust that the cloud provider will do what they say," Plummer says.

by Josh Compton

DATA CENTER MANAGEMENT

Making Peace With Social Media

Enterprises Learn To Embrace The Presence Of Social Networking

by William VanWinkle

• • •

There is a double-edged sword inherent in social media. The services can enable great benefits to organizations, but they can also incur massive gaffes and liabilities. Rather than risk the downsides, many enterprises have opted to block social media applications altogether. Most pundits, however, predict that the days left for this head-in-the-sand approach to social media are numbered. Although Forrester Research's Q4 2009 Enterprise And SMB Software Survey found that 68% of businesses had yet to officially support any social networking tools, wiki adoption alone will reach 45% in 2010. The time to embrace social media has arrived—provided it is done carefully.

Key Points

- Most enterprises have yet to put social networking to official use, but adoption is quickly mounting.
- Most businesses allow workers access to social media but have no formal policies regarding its use. This must change.
- Employ tools, such as remote monitoring and data loss prevention, to control employee use of social media, but educate workers on how and why their use is being monitored in order to prevent resentment.

Pressure To Change

Kevin Haley, director of Symantec Security Response (www.symantec.com), noted in a July blog posting that his company's survey revealed that 32% of employees "wouldn't want to work for a company that banned them from accessing a social network at work." Today, only 5% of companies now block all social media, down from 28% two years ago.

"Young workers are going to desire working for companies that are friendly to social media," says William Denny, a partner and computer law specialist at Potter Anderson & Corroon LLP. "Between two companies—one that locks out social networking tools and the other that allows them—the latter is going to attract and keep a stronger, younger worker base. Then companies have to manage that risk and train on mitigating that risk, while at the same time taking advantage of the opportunity."

Defining the "opportunity" is difficult, as it varies widely between industries and depends in part on how much the organization is customer-facing. As a marketing tool, social media's utility continues to mushroom. Even established IT firms, such as Microsoft, EMC, and IBM, make regular use of social networking apps for a variety of purposes. For instance, the Twitter account @vmwarecares is for VMware customers encountering hiccups in their conventional efforts to get support. Microsoft recently ran a haiku contest through Twitter to promote one of its server products.

"I can see a big accounting firm only letting communications and sales have access to social media," says Sean MacPhedran, director of creative strategy for Fuel Industries, which ran Microsoft's haiku effort. "If there's no use other than entertainment, why should anyone else have access? But on the other side, do you trust your employees to manage their time properly? If you do, then they should have access."

MacPhedran adds that with more than 500 million people now on Facebook, social media represents a new mode of communication in which companies need to be conversant and proficient. "If you're not communicating with [customers] the way that they're communicating with each other, you're pretty behind the curve."

Proceed With Caution

While most enterprises now allow social networking during work hours, Potter Anderson's Denny notes that only about 30% of businesses have any policies governing how that social media can be used. For example, is it acceptable for workers and managers to "friend" each other, especially when allegations of sexual harassment might follow? What about vendors and clients? Obviously, policies can depend on the ethics and accepted practices of each industry. Denny notes that ambiguity on this front is already creating hassles in the legal field, where a judge might have previously "friended" a lawyer on one side of a case. However, given that judges are lawyers and have social circles stocked with lawyer colleagues, is it right to ban them from having lawyer "friends" on social networks? There are no clear answers yet.

Some managers continue to resist social media on the basis that it can be a tremendous time sink. But if that's the only criterion for adoption, the same could be said of instant messaging, the Internet in general, and even the telephone. Each of these technologies has faced the "time waster" stigma in its turn and is now viewed as an essential part of doing business. The challenge is to educate and motivate workers to treat these resources as valuable assets, not on-premises toys.

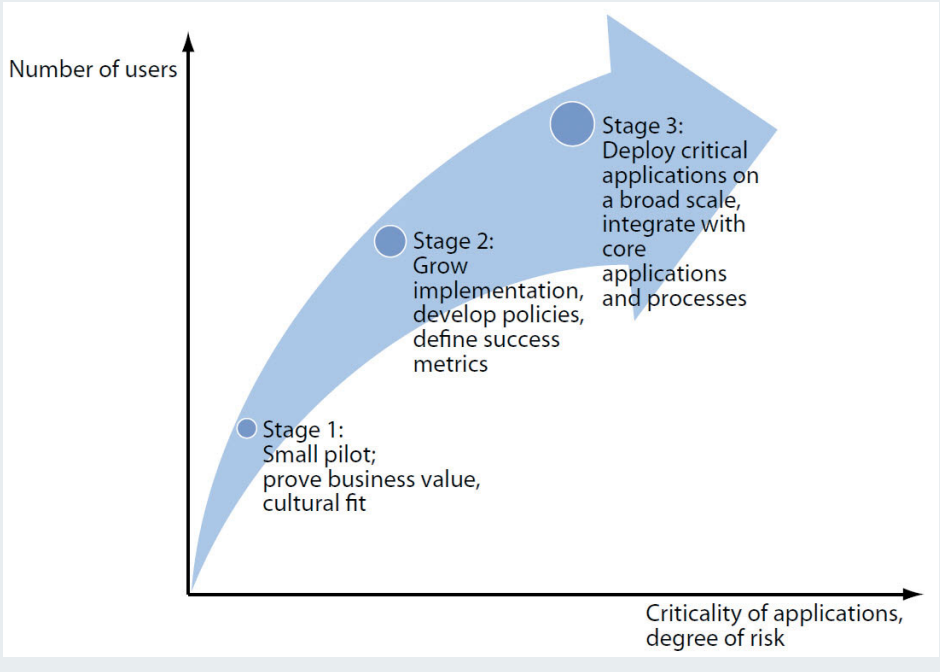
Of course, there are tools for policing social media usage. The time each employee is allowed to use a given application can be restricted, and there is always remote monitoring, as long as company policies note that workers' computer usage can be monitored in any way at any time in the office—within limits.

"An employer does not want to obtain any passwords into employees' password-protected space on a social networking site without the employee providing that information," says Denny. "There have been situations where employers get into private chat rooms on social networking sites using an employee's private ID and password. While on the site, they found that the employee was saying bad things about the employer and fired the employee. The employee had a valid breach of privacy claim."

DLP (data loss prevention) tools are common when enterprises want to keep digital assets from escaping on USB storage devices. DLP products can also be applied to social media. However, Symantec's Haley cautions that managers need to educate workers on how and why they're being filtered. Once workers understand the big picture, they'll be more likely to handle social media more responsibly and professionally, both at work and home. P

Social Media Adoption In The Enterprise

Forrester Research outlines three stages for enterprise social media adoption: First, define a business case for needing social media and then run a small pilot program to ensure it provides value to the company. Next, gradually expand social media tools to more users and business cases, taking care to avoid risk during growth. Finally, deploy social media throughout the enterprise and integrate with line-of-business systems.



DATA CENTER MANAGEMENT

The Cloud: Avoid Vendor Lock-In

Keeping Your Options Open Helps Maintain The Highest Quality Of Service

by Chris A. MacKinnon

• • •

Being tied to one vendor for specific products and services is sometimes unavoidable in the enterprise. This is also true when it comes to the cloud, particularly cloud storage. Most data center and IT managers are not fond of vendor lock-in, but there are ways to get around it when using cloud applications and services. If you find yourself tied in to one vendor, there are steps you can take to avoid a lock-in.

Lock-in Reality

Andres Rodriguez, CEO of Nasuni (www.nasuni.com), says enterprises hate vendor lock-in—not only when it comes to the cloud, but also when it comes to anything they have to buy. Rodriguez comments, "Vendor lock-in typically means that the vendors charge higher prices because they can and not because they are necessarily delivering value. Plus, your data is stored in the cloud. It may take a long time to move your data to another cloud provider. Also, some cloud providers have chosen to charge transfer costs, which makes it expensive to move significant amounts of data between providers."

The entire idea of SaaS (software as a service) is predicated on a "pay-as-you-use" model, says Vineet Jain, CEO of Egnyte (www.egnyte.com). Jain elaborates, "For cloud solutions positioned as SaaS play, this is a core concept. However, there are very few cloud solutions available today that are easy to 'switch out' from. Imagine taking your accounts, opportunities, or leads information from a company like Salesforce.com, for example, and transferring to another CRM system—not an easy task."

According to Mark Goros, CEO at Caringo (www.caringo.com), it is always a good idea to keep any vendor on his toes. "Lock-in means the customer loses his bargaining power," Goros notes, "and it also means that the customer may not be able to take advantage of a better or newer piece of hardware if the vendor they are locked into does not carry it." He says it's always good to use two or more suppliers so you have the best chance of negotiating good prices and maintaining the highest quality of service.

Side Steps

John Sloan, lead research analyst for Info-Tech Research Group, says avoiding vendor lock-in can be difficult for two reasons. Sloan explains, "First, cloud infrastructure as a service in general is not as open as it should be. This will require independent standards for data mobility. VMware President Paul Maritz has called this the 'Hotel California problem,' paraphrasing the Eagle's song lyric 'you can check in any time you like, but you can never leave.' Secondly, enterprise storage is already very proprietary. Even though vendors talk about open standards and interoperability, their actions have been to slow progress on this front as much as possible."

Ray Bahar, vice president of Promise Technology (www.promise.com), says there are ways to avoid vendor lock-in when using cloud applications and services. Bahar notes, "IT managers need to diversify their IT infrastructure by relying on a combination of internal software and hardware and the cloud. Companies no longer have to make significant upfront investments in technology or have an internal IT staff, so that all lessens the potential for lock-in.

Rodriguez agrees that there are ways around lock-in. "The cloud storage gateways are designed to give customers not only choice but practical ways to migrate data between providers," he says.

In Jain's opinion, cloud storage solutions that are well-designed to give the user flexibility in switching out need to make it easy to "export" or "download" data. He notes, "Essentially, vendors have to make it extremely easy for the customer to get access to their mass data. In that context, 'hybrid cloud' solutions provide a cloud file server combined with the local cloud where a local copy of data is automatically maintained on-premises on commodity hardware. In the event the customer decides to switch, they can do so, since they always had a local copy of the data."

> "Vendor lock-in typically means that the vendors charge higher prices because they can and not because they are necessarily delivering value."
>
> *- Nasuni's Andres Rodriguez*

Direct Steps

In order to protect your enterprise and its investments, Sloan says an enterprise can benefit from the right type of market. "I think that the market needs to mature, and interoperability and mobility standards need to emerge," he says. "Part of [the] investigation of any cloud service should be to get clear answers to data mobility questions. How can I move data out of the cloud if I want to change vendors? One strategy is also to make sure that local copies of all cloud data are maintained. This ensures that you have access to your data if you want to move it to an alternative cloud vendor."

In addition, Sloan says that maintaining local copies of data also is insurance against data loss if the cloud vendor becomes unavailable (due to technical problems or business failure). Of course, the paradox here when it comes to storage, he says, is that the cloud can be seen as a means of reducing the storage burden in-house, so by taking this approach, you're still keeping everything.

Bahar says in any young industry, the development of standards will ultimately help the consumer. "By keeping up on the creation and adoption of standards, IT managers can protect their investment," he says. "Already there are new standards that have broad industry backing to help normalize the way service-based applications are created. As standards become adopted, that should help establish de facto standards as vendors mature their technologies to take advantage of standards. It's a bit of a self-fulfilling cycle." Bahar says as adoption takes place, mobility will be easier, and as mobility is easier, more people will be comfortable adopting cloud technology. P

Key Points

- Vendor lock-in means that a customer is dependent on one vendor for products and services, and the vendors often charge higher prices because they can. Some cloud providers charge transfer costs, which makes it expensive to move significant amounts of data between providers.
- IT managers can diversify their IT infrastructure by relying on a combination of internal software and hardware and the cloud. You don't have to make significant upfront investments in technology or have an internal IT staff; all of the above lessens the potential for lock-in.
- Hybrid cloud solutions make it easy to get access to your mass data. Hybrid solutions provide a cloud file server combined with the local cloud where a local copy of data is automatically maintained on-premises on commodity hardware. If you want to switch, you can rely on your local copy of the data.

True Openness

According to Ray Bahar, vice president of Promise Technology (www.promise.com), there is a continued mandate that IT managers seek vendors whose products are heterogeneous and truly open, thereby being able to interconnect. Bahar says as that notion becomes more prevalent, in part because of the adoption of standards by vendors, the market will expand and more people will take advantage of the benefits inherent in cloud storage.

News

U.S. Faces Global Cybersecurity Challenges, Says GAO

The Government Accountability Office has reported that, in addition to facing cybersecurity problems at home, the United States also faces cybersecurity problems around the world. The GAO's report notes that, because of the proliferation of federal agencies involved in shaping cybersecurity policy, the United States has difficulty presenting a consistent and united front to the rest of the world. The GAO notes that until these challenges are met, the United States "will be at a disadvantage in promoting its national interests in the realm of cyberspace." Although administration officials say that it's a priority, Congress has made little progress in passing comprehensive laws dealing with cybersecurity issues.

Smartphones Continue To Take Over

Nielsen's latest data indicates that smartphone use climbed 23% between the first and second quarters of this year, and the feature-packed handsets now account for one in four mobile phones in the United States. In the second quarter of last year, smartphones represented just 16% of mobile phones. By the end of 2011, Nielson expects smartphones to outnumber feature phones. Another market research firm, eMarketer, predicts that 85.5 million mobile users will log onto the mobile Web in 2010, up from 83.5 million in Q4 of 2009. By 2013, however, 53.9% of mobile users (142.1 million) will go online with their mobile devices. In 2009, 28.7% of mobile users, or 68.6 million, logged on.

Infected UK Computers At Risk Even With SSL "Protection"

According to security vendor Trusteer, at least 100,000 UK computers are infected with Zeus, malware that is capable of defeating most antivirus applications. Zeus, which can infect users who visit Web sites designed to attack computers, can monitor systems and collect information, but hackers are taking that even further: One investigation found that Zeus was recording all traffic sent through users' browsers, including supposedly secure information sent via SSL. Zeus defeats SSL by capturing information either before it has been encrypted or just after it has been decrypted. The Zeus database can allow cybercriminals to view bank account balances and other sensitive data.

News

iSuppli: Android Will Overtake iPhone

Market research firm iSuppli is predicting that Google's Android mobile platform will take the top spot from Apple's iPhone operating system as early as 2012. Specifically, iSuppli says Android will operate on 75 million smartphones by 2012—a huge jump from 5 million in 2009—and iPhone OS will be running on 62 million iPhones. Market share-wise, iSuppli expects Android's share of the smartphone OS market to climb from 2.7% in 2009 to 19.4% in 2012, while Apple's share will go from 13.8% in 2009 to 15.9% in 2012. Android's predicted growth is not without reason; according to iSuppli analyst Tina Teng, "The flexibility Android offers for hardware designs and its appealing business model . . . have attracted vigorous support from all nodes in the value chain."

Online Job Market Shows Gains

At the same time as national unemployment remains at 10%, online professionals are watching their entrepreneurial endeavors pay off, according to the private online placement company Elance. The Elance Online Employment Report shows workers skilled in Google App Engine development, HTML 5, SEO, and social media marketing are experiencing unprecedented demand and growing incomes. Developers for the iPad are also in demand along with mobile skills related to iPhone, Android, and BlackBerry devices. New York City boasts the highest earnings, followed by San Francisco and Los Angeles.

Netbook Trend Cools

Techaisle reports that worldwide shipments of netbooks will top 36 million this year. Netbooks currently have a 5.3% business penetration rate and a 1.8% penetration rate for consumers. Techaisle also reports that between 2011 and 2014, netbook sales will slide because of stronger performance from traditional notebooks, which will differ largely in price and performance. According to the research firm, businesses seem to be gravitating toward the smaller form factor and extended battery life that notebooks offer. Techaisle's advice for netbook sellers is to market them toward businesses as being better at most mobility tasks than smartphones.

Tektronix To Acquire Arbor Networks

Tektronix has signed a definitive agreement to acquire Arbor Networks. Tektronix, a unit of Danaher, provides communications testing and network intelligence solutions, while Arbor Networks manufactures DoS attack protection and network security and visibility solutions. According to Rich McBee, Danaher group executive, Arbor's 275-employee firm will offer Tektronix expansion in the communications and enterprise markets. It will also allow Tektronix to expand its suite of network intelligence solutions. Although none of the terms of the acquisition were disclosed, Tektronix says it expects the deal to be complete within three to six weeks.

DATA CENTER MANAGEMENT

Dealing With IT Project Failures

Don't Place Blame, But Quickly Implement Corrective Actions

by William Van Winkle

• • •

All IT growth in an enterprise requires projects, but projects seem rarely to go as planned. In fact, according to the Standish Group, fewer than one in three enterprise projects succeed in meeting their objectives. Standish's latest data, from 2008, shows a 5% increase in outright project failure from the 2006 data, marking "the highest failure rate in over a decade," according to the company. You may be wondering why this is.

Elements Of Failure

"Three big things usually cause projects to fail," says Jim Johnson, chairman of The Standish Group. "There's lack of user involvement or user understanding of what needs to be done, so mistakes happen; pieces of the solution don't get implemented, or they do get implemented and just not used. No. 2 is lack of support, so budgets get blown out of the water. The third is not aligning the project with the business."

Key Points

- Roughly 75% of all enterprise projects fail to complete on time, on budget, and with perfect quality control. In many cases, poor and excessive communication may be to blame.
- Tangible project milestones are key to keeping projects in line with schedule, budget, and quality objectives. When trouble appears in achieving milestones, you must implement corrections immediately.
- If a project fails, admit it and be ready to present higher management with solid recommendations on how to proceed toward the desired results.

One could argue that each of these points comes back to communication. If only project managers communicated better with their superiors and with workers doing the hands-on deployment and use, things would flow more smoothly. After all, insufficient communication leads to poor understanding and inability to collaborate effectively.

However, lack of communication seems not to be the issue these days. According to Johnson, it's abundance and overload that are thwarting progress. "We used to see a lack of communication and information," he says. "Now it's too much information, too much communication. The filters are being clogged. There's so much communication and governance and processes, it's actually slowing things down and causing overruns. The fixes are now causing the problems."

Rob Enderle, principal at Enderle Group, points to a different trifecta of project killers: inadequate scoping (goal identification and boundary defining), inadequate resources, and inadequate management support. The more complex the problem, Enderle says, the higher the probability the solution will fail due to one of these core shortcomings. Scoping in particular proves painful for many managers, and relatively few do it well. Inadequate resources are practically epidemic at a time when the two most common words to describe the economy are "uncertain" and "modest." Every organization is under budget constraints now, but that can't be an excuse for underfunding projects. Project leaders need to have a firm grasp of real costs and be ready to turn down projects rather than fail with too little funding. If nothing else, this will get management's attention, and, if the project merits it, firmer support.

"Folks often assume support from management is a given," adds Enderle. "It isn't."

One thing that differentiates good managers from rank and file engineers or accountants is their ability to anticipate chaos in the big picture. In math equations, there's no need to leave room for error or expect the unexpected, but in enterprise projects, failure to provide for lost shipments, blown motherboards, or unforeseen code bugs is a death sentence. Project planners must leave room for "stuff" that "happens."

Info-Tech Research Group Lead Research Analyst Andy Woyzbun cautions project planners to expect obstacles not only from external sources, but also friendly internal groups. These lateral groups or managers from above can insist on unrealistic schedules that, if agreed to, will condemn a project before it's even started, if only because that schedule assumes every project step will run like clockwork.

Target Success

Woyzbun notes that one of the best actions that can help guide project managers is establishment of tangible milestones. Without these, it's difficult, if not impossible, to judge if a project is ready to deploy.

"Take a typical infrastructure change that would require the ordering of equipment from a vendor, the delivery of that equipment, the preparation of the facility for electricity, and so on," he says. "Milestones will ensure that you've properly activated the equipment and know it's working as needed. In most cases, if you establish those milestones, then if there are any problems, you've probably anticipated them ahead of time and can make the appropriate scheduling changes."

For Woyzbun, the three critical steps for project success start with planning milestones. Managers must validate that milestones happened on track or else, if they're not happening, adjust the project schedule accordingly. Before committing to the new technology on a broad scale, a sample must be tested using real production assets. Without real data and validation, managers are only seeing half of the story. If validation fails at this stage, planners must have a backup contingency in place.

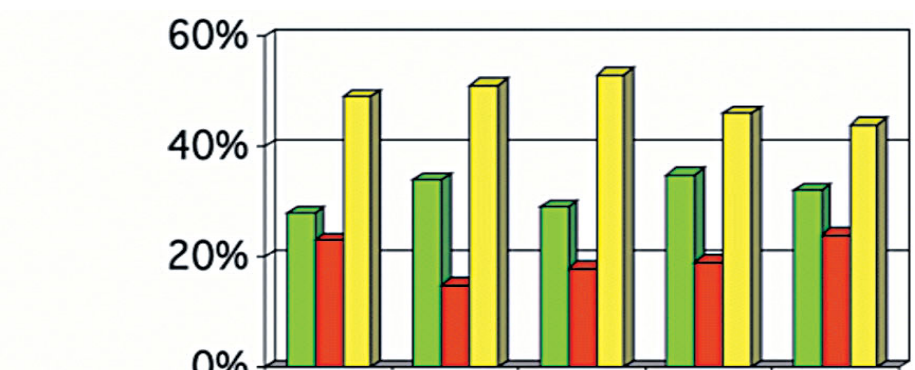
"The depth of validation testing should correspond to the complexity of the project," says Woyzbun. "If you haven't done the contingencies, it's very hard to recover from a faulty deployment in production. Obviously, you may have to delay deployment, but the worst thing you can do is put something into production that doesn't work. That's potentially a career-limiting move."

Despite all of the best preparations, however, sometimes stuff still happens. As with life in general, often the mettle of a manager is measured not so much by how he got into trouble but how the situation is remedied.

"While typical behavior is to find someone to blame for a project failure, preferably outside of IT, there are better paths," says Enderle. "The best path is to quickly put together a plan to replace the failed project with one that will work followed by a detailed, causal analysis of why the project failed coupled with corrective actions on how to assure that a failure will not recur. Senior management will often be more understanding if the failed organization steps up to the problem and has a plan to both mitigate it and assure it won't happen again." P

IT Project Failures

The Standish Group reports that fewer than one-third of enterprise projects qualify as outright successes, meaning they met management's goals for schedule, cost, and reliability. Nearly one-quarter of all projects fail and are scrapped. The remainder are classified as Challenged, meaning the projects were completed but failed to meet management's desired criteria.



	2000	2002	2004	2006	2008
Succeeded	28%	34%	29%	35%	32%
Failed	23%	15%	18%	19%	24%
Challenged	49%	51%	53%	46%	44%

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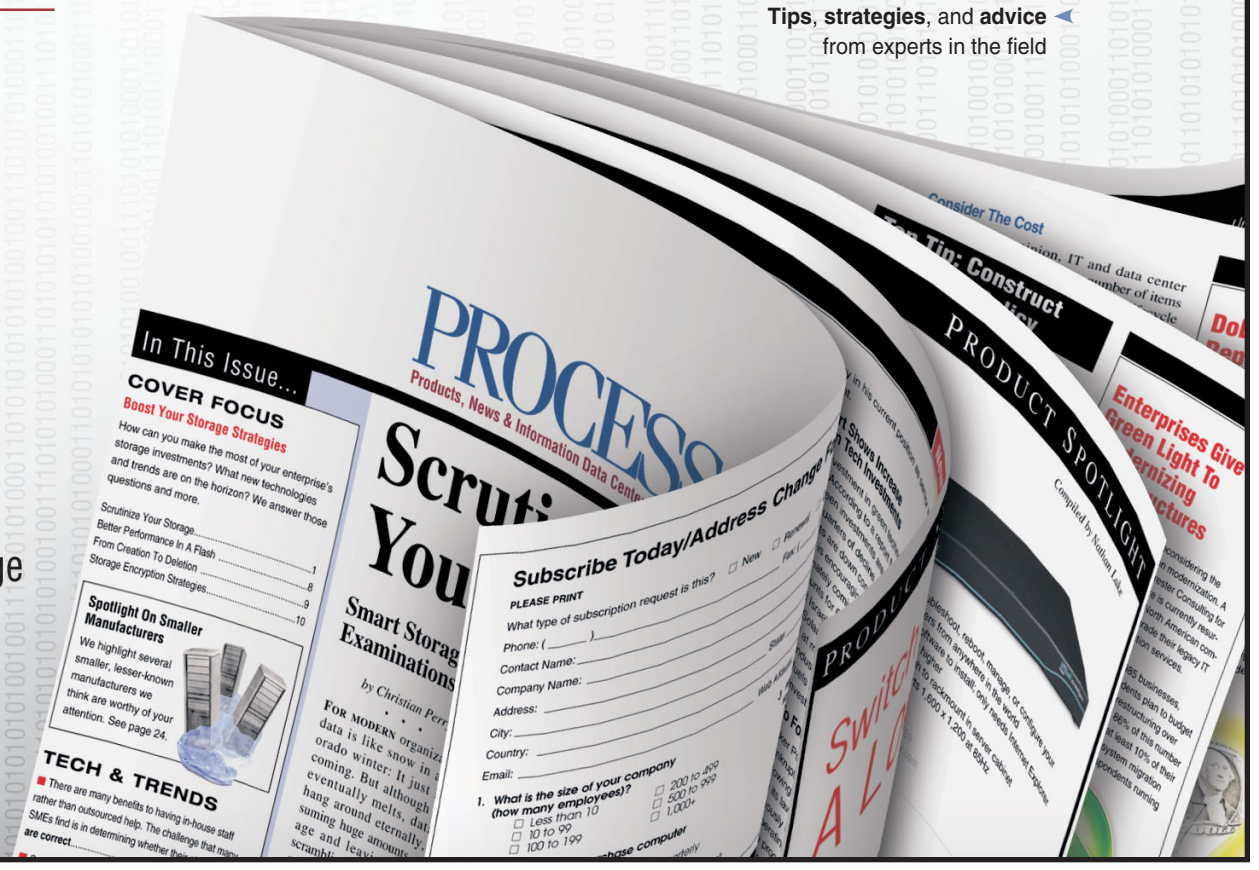

Processor Solutions Directory

Here are brief snapshots of several companies offering products designed for the data center and IT industry. Listings are sorted by category, making it easy for you to find and compare companies offering the products and services you need.

You can find more detailed information on these companies and the products they offer inside this issue.

To list your company and products, call (800) 247-4880.

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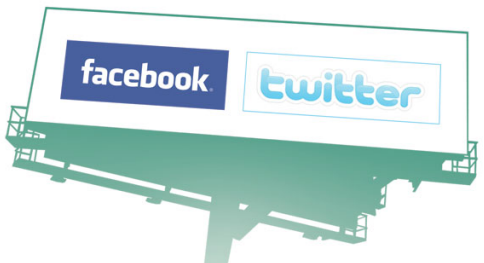

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